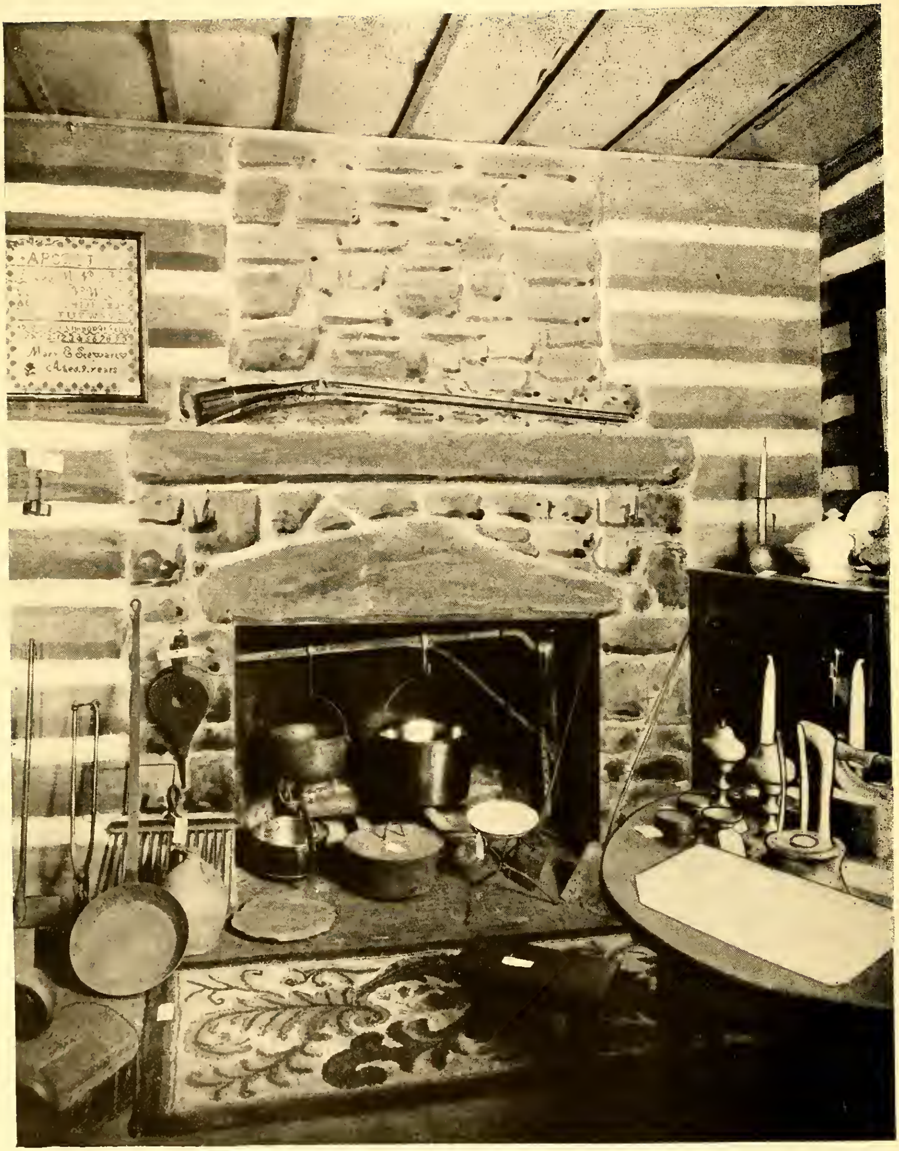
UNIVERSITY
OF PITTSBURGH

1787

LIBRARY



COLONIAL FIREPLACE IN LOG CABIN EXHIBIT
A temporary installation set up in the Reading Room of the Society, May, 1924.
(See p. XXVI-XXVII.)

Coxe Publication Fund

PROCEEDINGS

AND

COLLECTIONS

OF THE

WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,

FOR THE YEARS 1923-1924.

EDITED BY
FRANCES DORRANCE, Director.

FOUNDED
1858.

VOLUME XIX.

WILKES-BARRÉ, PA.
PRINTED FOR THE SOCIETY.

THE E. B. YORDY CO.
1926.

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by
The Wyoming Historical and
Geological Society.

PREFACE.

Because of the increased cost of publication and the inflexibility of our publication fund, it was not possible to prepare a volume for the year 1923, as hoped when volume XVIII was published. Consequently, volume XIX includes reports for 1923 and 1924, while volume XX, which, it is expected, will appear immediately after the close of 1926, will bring the publications of the Society up to date.

Thiessen's address on the "Origin and Constitution of Coal" is timely and particularly pertinent to the interests of the Society. In reprint form, it is having a wide sale, testifying to its general value.

The publication of others of the valuable addresses read before the Society during the years represented in the volume has been postponed for volume XX, owing to the length of the Schrabisch report on local Rock Shelters, herewith printed verbatim. This report contains much new material on local archaeology and therefore has present and also great future value in the work of the Archaeological Survey described on page 8 of the President's report for 1924. The necessity for haste in making the field investigations for the Survey is evident from the destruction in the Wyoming Valley, observed by Mr. Schrabisch. Great stretches of the state, still untouched by the advances of civilization, lie ready to give up their evidences of Indian occupation for the digging. At present, less is known of the prehistory of Pennsylvania than of any other state in the Union. Copies of the Schrabisch report with the plates are available as separates, bound and unbound.

After some search, the diary of Obadiah Gore was found in the Harvard College Library. It is of local importance, being a little known and hitherto unpublished journal of the Sullivan Expedition and because some years later, the author

Library 7-6-48

became prominent in the development of the anthracite coal industry. Available also in pamphlet form.

The cut showing the signature of Obadiah Gore is made from a page of the Proprietors of Westmoreland Book, through the courtesy of Mr. Hammond E. Fisher.

An erroneous statement in volume 18, page 30, fifth line from bottom, should be corrected here. The building on Barnum Place was rented, not owned by Messrs. Shupp and Brown. It then belonged to Mr. Edward Welles and is still a part of his estate.

The cemetery records here published are from a very important old local cemetery. Lack of space prevents publishing others in this volume; they will appear in succeeding volumes.

Late in 1925, the Publishing Committee sustained a great loss in the death of George F. Coddington, whose ability, ready advice and constant interest brought help and encouragement to every undertaking of the Committee.

FRANCES DORRANCE,
ERNESTINE MARTIN KAEHLIN,
WILLIAM N. SCHANG,
Publishing Committee.

THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,

WILKES-BARRE, PENNSYLVANIA.

Organized 1858.

The Library and Museum Collections are housed in the Historical Society Building, next to the Osterhout Free Library, as provided by the will of Isaac S. Osterhout.

The library contains about 40,000 volumes and pamphlets, including United States and Pennsylvania publications; on biography, genealogy, general American and local Pennsylvania history, geology, and the American Indian. It receives many historical, ethnological and genealogical magazines. It has a large collection of rare old manuscript records and papers, early and nearly complete files of local newspapers and hundreds of photographs of local places and people. There is also a large collection of local and general maps.

The museum contains collections of 45,000 archeological geological and ethnological objects, including the Lacoe collection of fossils, thousands of relics of the American Indian and hundreds of local antiques, furniture, household utensils, implements, relics of all American wars in which local men have served, etc. There is also a small but representative collection of local birds.

The library and museum are open to the public daily from 10:00 a. m. to 5:00 p. m.

The Society has published nineteen volumes and many pamphlets.

Lectures are given at least four times a year by noted speakers of local or national reputation. All lectures are open to the public.

The members receive all publications and privileges free.

Gifts of Indian relics, geological specimens, local antiques, photographs and particularly old papers and records of all kinds are greatly desired by the Society. Also relics of all American wars and of the European war and any articles of present or of future historic value. Loan exhibits are welcomed. They will be promptly acknowledged and carefully preserved and exhibited.

Address,

Wyoming Historical and Geological Society,
Wilkes-Barré, Pennsylvania.

FORM OF BEQUEST.

I give and bequeath to the "WYOMING HISTORICAL AND GEOLOGICAL SOCIETY," the sum of (*here state the sum to be given*), for the use of said Society absolutely.

FORM OF DEVISE.

I give and bequeath (*here describe the real estate to be given*), unto the "WYOMING HISTORICAL AND GEOLOGICAL SOCIETY," its successors and assigns forever.

The Society will be glad to receive any parts of Volume I, and all copies of Volume XVI, that members may be willing to spare.

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REPORTS AND COLLECTIONS

OF THE

Wyoming Historical and Geological Society

Volume XIX WILKES-BARRÉ, PA. 1926

PRESIDENT'S REPORT, 1923.

Since the annual meeting, of last February, there have been added to the work of the Society, several new undertakings and in addition to the present schedule of effort the officers of the Society plan still farther reaching undertakings for the coming year, in which they ask the co-operation of all members and the community in general.

The work done consists of six sorts: Publicity, to acquaint the community with the Historical Society, its collections and its desire for usefulness to the public; increased efficiency in the arrangement and condition of the collections, both library and museum, in order to provide the greatest and readiest help possible; additions to our library and museum including several priceless old records, so that the field of usefulness may be enlarged; education generally through lectures, conferences and a prize essay contest; and individual assistance, to the students coming to us or writing or telephoning their requests, and also to institutions and even corporations through co-operation in their work; and finally historical research pursuant to the purposes of the Society.

The publicity has taken various forms. The local newspapers have generously co-operated by publishing notices and news items descriptive of the different parts of the collections and work and of our many undertakings. The increased interest thus aroused has caused various organizations to arrange meetings with addresses on the Historical Society and local history,—notably the Kiwanis, and Quota Clubs, Guthrie and Dorranceton High Schools and the Wilkes-Barré Institute.

Displays of specimens selected to represent the different collections in the museum and library were held at the Elks' Bazaar; in the Market street window of the Sunday Telegram; and at the Home Beautiful Exposition. These aroused much interest and comment, particularly the one in the Telegram window, before which, during the two weeks of this display, a numerous group was constantly in interested inspection.

Loan exhibits in the Historical Society Building were described in the newspapers and brought visitors. The two most noteworthy ones were a loan exhibit of Bibles, to which many rare and interesting specimens were sent and another of oriental costumes and batik work loaned by Miss Mary A. Sharpe, which is still on exhibit in the museum.

In order to add to the efficiency of the institution, the books and museum collections have been rearranged. Mr. Arthur C. Parker, New York State Archeologist, has rearranged and relabelled the collection of Indian stone implements and pottery, making them much more significant and interesting to the general museum visitor because in the order in which the Indians developed them, etc. Through the assistance of Mr. Robert W. Bingham, Curator of the Buffalo Historical Society museum, the firearms collection has been more accurately relabelled and arranged. Additional, much needed, book cases have been purchased for the library. The Government Documents, Federal and State, are now as well arranged as the over-crowded and overflowing conditions in the building will permit.

The editing and arranging of the genealogical manuscripts, the gift of Mrs. Eleanor McCartney Bamford, is well under way and it is hoped that this data will be available to the public before the end of the year.

The effect of this work has been shown in the increased use of the building and collections; additions to the collections and the gains in membership.

To put the matter statistically 6,689 visitors came to the building of whom one-ninth remained for study. This constituted a gain of 42% in general attendance and of 16% in students. The adult gain was 59% and of children 32%. The gain in membership was even more encouraging, the number of annual members more than doubling; while thirteen life members have been added.

Additions to library and museum have been extensive and valuable. They have come almost entirely through gift or by exchange; of the Federal documents, 964 items; of the State documents, 68 have been received. A complete set of topographical maps of Pennsylvania has been purchased. The 695 books added to the library constitute a gain of 74% over the average annual gain of the past ten years. Only 93 of these were purchased; nearly 200 were gifts; and over four hundred were received in exchange for the Society publication or for duplicates accumulated during the past few years. One book dealer alone took four hundred dollars worth of these. As the books needed by the Society are rare and valuable and often out of print, the actual number received fails entirely to represent the value of the additions. The sale of the duplicates and the publications of the Society has brought in about $557.00.

Volume 18 of the "Proceedings and Collections" has been received most favorably. In addition to this volume, the Society printed booklists of books for sale or exchange, which have aided in the sale and exchange accounts.

Many of these new books have been catalogued by Miss Kaehlin, the librarian, and placed on the shelves and the remainder are being made available by her as rapidly as her work with visitor students permits. Of the many interesting additions to the library a few might be referred to here in order to indicate the general scope of the collection. Among the genealogies, are: The Seldens of Virginia, The Townsend genealogy; The Hudson-Mohawk New York genealogy and family memoirs; The Hardings; The Cogswells in America; The Millers of Millersburg, Pa.; The Morris Family register; The Crall Family; the Johnson genealogy; Colonial lists of Plymouth and Rhode Island colonies; The Maryland archives (41 volumes); Provincial papers of New Hampshire; Genealogical dictionary of the Canadian families (10 volumes, comparable to Savage's Genealogical dictionary of New England). Of the English genealogies, the following are of especial interest: Parish registers of Bircham, Newton, Norfolk, Marsham, the Norwich rate book, 1633-34; Armorial families by Fox-Davies and the splendid two volume Peerage of Scotland by Douglas, a very rare work of great value in Scotch genealogical research.

Of the works on local history, the following are important: History of Chelmsford, Massachusetts; History of Monroe County, Pennsylvania; History of Martha's Vineyard, Massachusetts; History of Jefferson County, New York, 1793-1894; History of Ashburnham, Massachusetts, 1734-1886;

History of Oswego County, New York, 1789-1877; History of Seneca County, New York.

The files of the publications of sister Societies doing similar work are being completed as rapidly as possible by exchange. In addition to these many new exchanges have been established; as, with the Swedish Colonial Society.

Many regimental histories have been added, representing the different states in the various wars of this country, which furnish inestimably valuable assistance in genealogical work. Of these the following may be mentioned; Medford, Massachusetts, in the Revolutionary War; New Hampshire Revolutionary Rolls; Vermont Revolutionary Records; among the Civil War regiments represented are the New York 40th Regiment; the Second Rhode Island Regiment, the 12th Regiment of New Hampshire and Pennsylvania regimental histories to complete the collection already in the possession of the Society. Of the regimental and state histories of the World War, we have already received the Illinois records, the Indiana and Virginia records and have on deposit Dr. Farr's story of the 109th Field Artillery.

The renewed interest in the Indian collections of the Society has led to many additions to the Indian library, of which the following may be cited: Stories the Iroquois tell their children; Thacher's Indian biographies; Ancient religion of the Delaware Indians; Iroquois book of rites; Mound builders; Indians' book by Curtis; The Journal of John Woolman, containing his account of his Indian journey to Wyalusing in 1763, and many others.

While the additions to the museum are not so numerous as the book accessions, because of the scarcity of such material and its cost, a number of very valuable articles have been received, all by gift and mostly from members of the Society. For the geological collection, the Society received from the estate of Mr. R. D. Lacoe, many minerals, fossils and books, together with specimen cases. So many in fact, that the bulk of the collection has been stored until the space needed for exhibit purposes can be secured.

Among other gifts during the year have been a number of photographs and engravings of local historical value; some flags, some coins and medals; household utensils such as a charcoal iron, old china, a toad-fat lamp, lantern from the Wilkes-Barré and Eastern Stage Coach; two old firearms (in response to an article on our collection), a French music box, from New Orleans, over one hundred and twenty-five years old; the wedding dress and two other dresses of Ellen Hollenback, the mother of John Welles Hollenback and grandmother of C. W. Bixby; an oil portrait of Sheriff Steel and a fine china punch bowl formerly in the old Red Tavern at Hanover. On deposit in the Society are the Sutton desk, some souvenirs of the World War and a number of valuable old letters and records.

Of the Indian articles given to the museum two collections are of great importance, the articles collected by Colonel E. B. Beaumont during his service in the United States Army in the Southwest, given by his children, and the Seneca Indian articles presented by Mr. Edward Welles, Jr. Some rare bone implements and shell ornaments have been given by Mr. A. C. Parker.

A number of friends and members have sent in collections of books, covering various subjects within the scope of the Society's library. Among these are those given by Mrs. R. P. Brodhead, Mrs. Benjamin Dorrance, Mr. William T. Barnes, Mr. O. C. Hillard, Mrs. R. V. A. Norris, Mrs. H. B. Plumb, E. B. Yordy Estate. Old records have been given by the grandchildren of Andrew Beaumont, Mr. William A. Wilcox, Mr. William Mannear.

The largest individual gift to the Society was a fund of $1,000.00, from Mr. William T. Payne for archaeological research, by which Mr. Payne named his daughter Miss Anna Payne a benefactor of the Society.

Since it is impossible in this report to read the long list of donors to the Historical Society and of those lending or depositing articles in its building, the list will be printed in the local papers.

Individual assistance was given during the year to more than five hundred students in the building. To twenty-three others assistance on genealogical and historical matters was given by letter. Their inquiries came from all parts of the United States.

Various articles have been lent individuals for illustrative work and co-operation given the advertising departments of stores, schools (for pageants), and a lodge entertainment. Many students searched the files of old newspapers, others brought Indian objects for identification, and the Yale University Press borrowed cuts and received information on the history of coal.

The general educational phase is represented partly by the free lectures, of which there were six in 1923.

Another side of the general educational work of the Society was started by a conference of history teachers and school principals on September 26th, to which 33 came, offering helpful suggestions for the co-operation of the Society with their work. One result has been the visits from 18 school classes, coming from Wilkes-Barré and nearby towns.

Still another method of arousing interest in local history was tried by offering a prize to the Girl Pioneers for the best essay on the Life and Times of Frances Slocum. Fifteen essays were handed in and of these two were so good, that a first and a second prize were given.

In line with the usual work and yet somewhat of an innovation were two lectures, for which admission was charged, to defray the unusually heavy costs. One by Bishara Nahas on the Life and times of Tut-Ankh-Amen and the other a recital on the Clavilux by its inventor, Thomas Wilfred.

As an experiment the Society's building was last year kept open during August. The statistics of the attendance and use justified this departure from the vacation period closing. Of the 400 visitors, during the 26 business days in that month, over 40 stayed to study, sixteen different states were represented and 173 localities, of which more than half were outside the Wyoming Valley.

The work of research has been more of a tentative program than an actual accomplishment because of the great expenditure of time which research requires, and our very limited staff and funds. It is working out steadily, however, and will be carried on successfully. Mr. Tillotson, our archivist, in addition to his work on the government documents and the old records, has been working on the McCartney-Bamford genealogical papers and also copying the inscriptions on old gravestones. In seven cemeteries, located in Lehman, Exeter Township, Ransom, Avoca, Duryea and West Pittston, he has completed nearly 1,000 inscriptions. Most of these "God's Acres" are in pitiful shape and the stones themselves rapidly disintegrating or disappearing altogether, although the information of the records is of prime importance to the genealogical and historical student. While the Society has a list of 12 more cemeteries to study, we are eager to know of any neglected or abandoned graveyards where such important records can still be obtained.

Mr. Tillotson is also compiling a list of place names in Luzerne County, giving the derivation of the name and any changes which the years may have brought. Co-operation of the public is also desired in this work, which while apparently commonplace is of very great importance, historically.

The most important research made during the year was the investigation of the rocky caves and overhanging ledges used by the Indians as rock shelters during their stops in the valley or on hunting and fishing trips in this vicinity. This work was made possible by the gift of Mr. Payne and has been conducted by Mr. Max Schrabisch, an archaeologist of recognized ability in his line. The report of his work and his discoveries which we expect to publish in the next volume of our Proceedings, will furnish a considerable contribution to the scientific study of the early inhabitants of this region.

The Historical Society has many plans for the coming year. The regular work will be continued. A Wyoming bibliography of subjects and references for the use of the history teachers in the local schools is being prepared. The Community calendar, recently started, should be of real assistance in the registration of coming events of a public interest. The old Susquehanna Company Purchase Papers, owned by the Susquehanna County Historical Society, have been photostated and work on transcribing and editing them will soon begin. In April, a student from one of the important library schools in the East will spend two weeks in work in our Society building, in order to prepare herself for special work in an Historical Library. The request for this we may properly consider an acknowledgment of the standing of the Wyoming Historical and Geological Society.

But of the many plans and problems of the Society two are of primary importance. First, a survey by letter and questionnaire, of the area included in the Susquehanna Watershed, in order to obtain and record all information about the by-gone Indian occupation of what was a most important section of their country. The second, the ways and means of obtaining the housing space already needed for the proper display of the treasures now in the possession of the Society and those which will be given it in the near future.

The Society needs the co-operation of the people of this community. It needs many thousand more members. It needs books on the lines indicated by this report. It should be made the custodian of old records and papers and photographs, and of souvenirs of the World War. It will welcome gifts of Indian articles, geological specimens, local antiques and any other articles of present or future historical value. Loan exhibits and the deposit of family historical articles are always useful and interesting to our visitors.

Life Members Added in 1923.

BENEFACTORS.

Steuben Jenkins (Reported at last annual meeting)
William A. Wilcox (Reported at last annual meeting)
Miss Anna Payne

LIFE.

Mr. and Mrs. Frederick W. Ahlborn
Miss Edith Brower
Mr. Robert R. Harvey
Miss Doris Hillman
Miss Frances Hillman
Mrs. Frederick Hillman
Mrs. F. C. Johnson
Mrs. W. A. Lathrop
Mr. Harry F. Stern
Miss Louise M. Thomas
Mr. Frederick J. Weckesser
Mr. Frank J. Wilder

Donors to the Historical Society Collections.

J. E. Anderson: coins and medals.

Dr. C. M. Andrews: book.

T. H. Atherton: coin.

E. S. Balch: magazines.

T. W. Balch: book.

James Baldwin: book.

Est. Eleanor McCartney Bamford: ca. 200 vols., genealogical papers, filing case, bookcase, $500.00 as memorial fund to Mrs. Katherine Searle McCartney, income to be expended for genealogical books.

Dr. H. L. Barnes: book.

William T. Barnes: books and pamphlets.

Mrs. H. W. Bay: book.

Andre A. Beaumont, Eugene B. Beaumont, Mrs. C. P. Elliott: Indian garments, pottery, etc., bound newspaper, and old records and papers, flags.

George R. Bedford: book.

Mrs. W. Beisel: engraving.
Bell Telephone Co. of Penna.: photograph.
Elma Bishop: photographs.
C. W. Bixby: 3 old dresses.
A. Bruce Black: photograph.
Boston Store: book.
Mrs. R. P. Brodhead: books and pamphlets.
Brown University, Alumni Dept: books.
Julia Butler: book.
George H. Catlin: medal and book.
Chemical Foundation: book.
Joseph Cohen: stamps.
Douglas Crocker: book.
Stewart Culin: pamphlets.
Delaware & Hudson Co.: pamphlets & photograph.
William Dippré: coins.
Anne Dorrance: books.
Mrs. Benjamin Dorrance: books, pamphlets, photographs.
Frances Dorrance: Indian articles, books, museum articles.
P. K. Ewing: book.
Mrs. George Febiger: China bowl.
E. F. Ferris: portrait, punch bowl.
Mrs. H. A. Fillmore: autograph letter.
Mrs. C. D. Foster: engravings, newspapers, pamphlets.
Rev. W. M. Gage: book.
F. W. Gale: book.
Dr. Walter S. Galland: book.
Mary E. Gates: lantern and charcoal iron.
Mrs. Maris Gibson: book.
Mrs. F. B. Gummere: book.
F. R. Hart: book.
W. S. Hart: book.
O. C. Hillard: books, museum pieces, clippings, photographs, old newspapers.
C. F. Hoover: coal fossils.
Mrs. C. P. Hunt: old music box.
C. R. Hunt: photographs.
Mrs. Charles Jackson: photograph.
Mrs. C. B. Johnson: books.
Mrs. F. C. Johnson: flag.
Kingston Coal Co.: calendar (Coal).
Mrs. G. B. Kulp: books.
Est. R. D. Lacoe: cases, fossils, minerals, books.

I. V. Lendrum: special paste.
G. P. Lindsay: fossil nut.
Longfellow Memorial Ass'n.: pamphlet.
Arthur Lord: book.
Mrs. C. N. Loveland: books, gas mask, German machine gun, Revolutionary overcoat.
J. B. McNair: book.
Frances G. Markham: file of Spanish-American War issues of Harper's Weekly.
Mutual Life Insurance Co.: calendar (Catlin prints).
C. H. Newhard: photograph.
Mrs. R. V. A. Norris: books.
J. H. O'Neill: fossils.
A. C. Parker: book, Indian bone and shell implements and ornaments, wampum.
W. T. Payne: fund of $1,000.00 for Rock Shelter investigations.
W. J. Peck: maps.
Sidney Perley: book (gift of Mrs. Gove).
W. F. Phelps: books.
Mrs. H. B. Plumb: books, museum pieces.
George Rainey: newspaper.
Dr. T. E. Satterthwaite: book.
Sallie Sharpe: vase from French shell.
Mrs. H. M. Shoemaker: books.
H. W. Shoemaker: pamphlets.
Jane A. Shoemaker: books, pamphlets, magazines, easel.
H. N. Stark: book.
Sara H. Stites: pamphlets.
R. B. Strassburger: book.
Meyer Strauss: photographs, showcase, gun.
W. C. Sutherland: toad-fat lamp.
Swedish Colonial Society: books.
Anna H. Taylor: hetchel.
I. M. Thomas: books.
Samuel Thompson: pistol.
Caroline Ticknor: pamphlet.
R. M. Tingley: book.
W. L. Tompkins: book.
C. K. Trumbower, Jr.: Indian pipe.
Mrs. B. R. Tubbs: pamphlet.
Turner and Van Scoy: concrete water pipe.
Mrs. G. M. Van Duzer: photographs, clippings.

C. V. Vickery: book.
Rev. Ferdinand von Krug: clippings and photographs.
Mrs. F. C. Wagner: book.
Dr. J. J. Walsh: pamphlets.
Edward Welles, Jr: Seneca Indian ethnological articles.
Hever Wells: pamphlets.
W. A. Wilcox: Old records, pamphlets, photographs.
F. J. Wilder: book.
Wilkes-Barré Post Office: old records.
Rev. L. K. Willman: pamphlets.
W. E. Yager: pamphlet.
Est. E. B. Yordy: books, pamphlets, newspapers.
Farran Zerbe, pamphlets.

LOANS TO HISTORICAL SOCIETY COLLECTIONS.

Bibles: lent by Miss Marie Ansart, Mrs. W. T. Davis, Mrs. Lillian Dietrick, Miss Harriet S. Fisk, J. G. Laidacker, Dr. D. H. Lake, Mrs. Anna Leib, Mrs. Millard Long, B. R. Peters, Mrs. L. A. Schrage, Mrs. H. L. Shipp, Mrs. W. A. Wallace, Mrs. C. R. Wood.

Letters, etc. of Stephen C. Foster: lent by Mrs. F. J. Beach.

National Cash Register: lent by J. M. Cobb.

Garden furniture: lent by New Wall Paper Co.

Lantern for lecture: lent by Rev. C. H. Frick.

Portrait of Mrs. Benjamin Franklin: lent by Miss Louisa A. Hodge.

A German hymnal: lent by Mrs. G. B. Kulp.

Photographs of Mr. and Mrs. Truck: lent by Miss Florence Elston.

Portrait of George Washington: lent by Miss Frances G. Markham.

Portrait of Lincoln: lent by Mrs. C. A. Miner.

Two old books: lent by Mrs. Miriam E. Moore.

European War collection: deposited by Walton Multer.

Old Sutton desk: deposited by Mrs. H. C. Berlew.

Old Cincinnati lists: lent by J. A. Boyd.

Indian stone implements and brass from S. S. Maine: lent by Dr. O. H. Burns.

Old china, garments, museum articles: deposited by Mrs. H. B. Plumb.

German hymnal: lent by E. L. Shafer.

Collection of Indian baskets: lent by Miss Elizabeth Sharpe.

Collection of Japanese Batiks and oriental costumes, etc.: lent by Miss Mary A. Sharpe.

Indian basketry books, miniature of Washington: lent by Richard Sharpe.

Miniature of Franklin: lent by Miss Sallie Sharpe.

Vacuum cleaner: lent by Shepherd & Rust.

Local photographs: lent by P. R. Smith and Caro R. Strong.

German prayer book and hymnal: lent by Mrs. Elizabeth Spiegle.

Spear used in John Brown's raid: lent by S. J. Stark.

"Toad" fat lamp: lent by Mrs. G. C. Stoner.

Manuscript collection of sermons: lent by Mrs. Elizabeth White.

Collection of reproductions of portraits of Washington: lent by William A. Wilcox.

DORRANCE REYNOLDS,
President.

REPORT OF THE TREASURER

Of the Wyoming Historical and Geological Society,
Year ending December 31, 1923.

RECEIPTS.

Balance on hand, January 1, 1923:		
Check Account	$ 859.12	
Savings Account	82.73	$ 941.85
Special Funds, amount received from members who desired bound copies of Volume No. 18, together with sundry interest		108.72
Sale of Books, books and other publications sold during the year		557.33
Genealogical Services, services rendered by the Society for the purpose stated		5.00
Income Account, Income received from investments, etc.		5,420.82
W. T. Payne contribution		1,000.00
Life Memberships, received during the year		1,300.00
Luzerne County, Appropriation		300.00
Membership Dues, annual dues received during the year		1,435.25
		$11,068.97

EXPENDITURES.

Address, delivered at the several meetings during the year		$ 105.00
Special Funds, amount used during the year for the purposes specified		436.73
General Expense, operating expense, supplies, printing, binding, book purchases (Payne contribution was placed to credit of this account)		3,182.04
Incidental Account, petty cash used in Historical Rooms		176.00
Investment Account, Investments made	$16,928.00	
Investments paid	15,877.03	
		1,050.97
Insurance Account, compensation and insurance on contents of building		265.00
Salary Account, salaries paid during the year		5,045.96
Telephone Account, telephone service		88.80
Balance on hand, December 31, 1923:		
Check Account	$ 386.71	
Savings Account	331.76	718.47
		$11,068.97

WYOMING HISTORICAL AND GEOLOGICAL SOCIETY.

LIST OF SECURITIES IN HANDS OF THE TREASURER ON DECEMBER 31, 1923.

		Annual Income
	BONDS.	
$ 500	Pacific Gas & Electric Company, 1st Mtg. 20-yr. S. F. 6%—1931	$ 30.00
1,500	The Wilkes-Barre Co., 1st & Refdg. Mtg. 5%—1960	75.00
1,000	Muncie & Union City Traction Co., 1st Mtg. 30-yr. 5%—1936	50.00
10,000	Anaconda Copper Mining Co., 1st Consol. Mtg. "A" S. F. 6%—1953	600.00
1,000	Columbia & Montour Electric Co., 2nd Mtg. 30-yr. 5%—1943	50.00
1,000	Lackawanna & Wyoming Valley Rapid Transit Co., 50-yr. Collat. Trust 5%—1951	50.00
1,000	Minneapolis Gas Light Company of Minneapolis, Minn., 1st Genl. Mtg. 5%—1930	50.00
4,000	Chesapeake & Ohio Railway Co., Genl. Mtg. Gold Bond of 1892, 4½%—1992	180.00
3,000	Minneapolis, St. Paul & Sault Ste. Marie Railway Co., Equipment Gold Notes, Series "J", 6½%—1929	195.00
8,000	American Smelting & Refining Co., 1st Mtg. "B" 6%—1947	480.00
11,000	Wilkes-Barre & Wyoming Valley Traction Co., 1st Mtg. Extended 7%—1931	770.00
11,000	Spring Brook Water Supply Co., 1st Mtg. 5%—1926	550.00
8,000	Raeder Blank Book, Lithographing & Printing Co., 1st Mtg. Extended 6%—1932	480.00
3,000	Fruit Growers Express Co., Equipment Trust of 1923, "C", 5½%—1937	165.00
4,000	Dutch East Indies, 30-yr. External S. F. 5½%—1953	220.00
5,000	E. I. Dupont de Nemours & Co., 10-yr. 7½%—1931	375.00
4,000	South Carolina & Georgia Railroad Co., 1st Mtg. Extended 5½%—1929	220.00
2,000	Sheldon Axle Co., 1st Mtg. 5%—1930	100.00
1,000	Indianapolis, New Castle & Eastern Traction Co., 1st Mtg. Extended 6%—1932	60.00
1,000	Consolidated Telephone Co., 1st Mtg. 5%—1953	50.00
3,000	Columbus, Newark & Zanesville Electric Railway Co., 1st Mtg. 5%—1924 (Deposited with Girard Trust Co., Philadelphia)	None
	STOCK.	
600	American Telephone & Telegraph Co., six (6) shares	$ 54.00
2,000	Hazard Manufacturing Co., twenty (20) shares	80.00
	MORTGAGES.	
850	Frank Barnes, Union St., Luzerne, Pa.	25.50
1,400	Mary A. G. Barrett, W. Jackson St., City	38.50
2,150	John Bobek, et ux., N. Washington St., City	64.50
$91,000		$ 5,012.50

Respectfully submitted,

Charles W. Laycock, Treasurer.

Treasurer.

PRESIDENT'S REPORT, 1924.

During the year 1924, the Society has advanced its regular work and progressed far towards the solution of the problems of the need of increased space, the need of increased funds and the need of recognition by the community through a use of its collections and library.

The need of increased space is patent to the most casual visitor to the building. With great care, it is possible to keep the overflowing basement shelves and aisles in sufficient orderliness to pass the fire department inspection. But such overcrowded conditions prevent systematic arrangement of the invaluable reference material the Society possesses, thus reducing its availability for display and for study. To meet this need, the Trustees have contracted to purchase the grounds and building of the Wilkes-Barré Institute, directly across the street from our present building. In order to bring the matter most forcibly before the members of the Society, a small booklet was prepared, presenting tersely the situation and the advantage offered by the Institute purchase. The E. B. Yordy Company generously donated the printing of the booklet in view of the merit of the undertaking and their generosity was awarded prompt return by a donation from Mrs. C. D. Foster of $5,000.00 establishing a Memorial Endowment Membership for her daughter, Miss Lillian Foster.

Quite as great a limitation to growth and extension of usefulness is the need of a general endowment for current expense. Mr. Abram G. Nesbitt has recognized this and promised $50,000.00, the Society to raise $50,000.00, the total amount to be invested and only the income to be available for use.

To date over $20,000.00 has been given or pledged, leaving $30,000.00 to be raised. The desire of the Society is to obtain the full amount in the form of memorial and personal permanent memberships, in order thus to widen interest in the Society's work. The plan has been endorsed by the local men's luncheon clubs. The money already "raised" has come as an unsolicited Benefactor memorial to

Mrs. R. Bruce Ricketts, established by her daughter, Mrs. W. S. MacLean, Jr.;

by the personal application for Life memberships by
Mrs. Mary S. Ayres.
Miss Josephine Loveland.
Miss Helen Ross.
Hon. L. A. Watres.

The establishment of other Life memberships by
Mrs. Burr C. Miller for her two sons.
Mr. W. H. Conyngham for his two sons.
Mr. W. S. McLean for his daughter.
Mr. Chas. W. Bixby for his son, Dr. Edward W. Bixby.
Mrs. Robert P. Brodhead for her son, Charles P. Brodhead.
Judge Fuller for his grandson, Joseph Doran.

One gift of $2500.00 has established Memorial Benefactors, two of $5,000.00 each, Endowment Membership memorials, and $5,000.00 has been promised by Dr. and Mrs. L. H. Taylor, upon the completion of the fund.

This will double our General Endowment and double our activities. It will enable us, for example, to secure valuable out-of-print books and rare museum articles, frequently offered but now beyond our means; to improve our filing system for the old records, manuscripts, photographs, etc.; to copy old family records lent for that purpose; to bind the many valuable periodical publications of related societies, and to repair and rebind local histories, vital records, etc., which are becoming loose or broken with use.

One new line of work which the Society would eagerly undertake is direct work with children, by means of a paid worker on Friday afternoons and Saturdays, when children are allowed to visit the building. The sum of $5,000.00 given for this purpose, would be acceptable under Mr. Nesbitt's conditions, and its income adequate for the first few years. By question games in the museum, by brief essay contests, by lectures, informal in the museum, or illustrated, the vision of the children of the community could be immeasurably widened.

However, the most vital need of the Society, is the increase of community recognition that the work of the Society, its collections of books, records, photographs, household utensils and furnishings, and other museum articles, are fully and freely available to every one permanently or temporarily resident in this vicinity. Last year's success is shown by the increased use of the building, the increase in membership and the numerous gifts and loans to the collections.

Our method was fundamentally newspaper publicity. For this the sincere thanks of the Society are extended to all the local newspapers for their generous assignments of space for articles describing the Society; its community usefulness; its collections; their availability to all, and for the special publicity connected with the lectures and exhibits.

The statistics, showing the use of the building and the accessions to the collections are: In the 306 days the building was open, there were 8,422 visitors (of whom over 54% were adults), a gain of 26% over 1923. This makes approximately 28 visitors every day, or one for every quarter hour that the building was open each day. These visitors came from 33 different states, from Alaska to Florida, Maine to California, from Canada, England, Switzerland, Brazil, Australia and West Africa. Nine different school classes were brought by their teachers, to most of whom a brief talk was given by a representative of the Society.

The membership has grown steadily. There are now 375 annual members, 38 Benefactors, 3 Endowment members and one Patron, and 221 Life members, a total of 638. Two new classes of annual membership were established in 1924. These are Sustaining members, paying $25.00 annually, and Supporting members, paying $50.00 annually.

The gifts to the museum are equally encouraging, as is shown by the appended lists. The loans were largely made in connection with the Log Cabin Exhibit in May, and the China and Glass Exhibit in October, also shown in the lists, while the material deposited in the Society for safe-keeping has a very special value to students, in making available to them material otherwise scattered in private ownership, and also to the owners, who are thereby assured of the safety of their treasures.

Of the 600 books catalogued and added to the library, roughly one-third were purchased, one-third received by gift and one-third through exchange. There have been added to the archives, of Federal documents, 85 bound volumes and 1131 pamphlets, a total of 1216 titles; and of State publications, 20 bound volumes and 41 pamphlets, a total of 61.

Special attention should be called to the inestimably valuable collections of manuscript letters and papers written by or to Charles Miner, the local historian, which his granddaughter, Mrs. C. F. Richardson has given, and to the volumes of the Early Westmoreland Land records and Judge Dana's Civil War Papers, sent in by Mr. Gilbert S. McClintock. Another gift, closely connected with these and in a sense equally important, is the fund for photostating the five volumes of these Westmoreland records, made possible through the generosity of Mr. Abram G. Nesbitt and Messrs. Smith and Welles. This photostating was an important feature of the year's work, for the copies, when bound and thus made available to the student, will save these precious documents from the wear and tear of handling. They include notes and observations on the Connecticut titles in the original townships, now constituting our locality, land records, town votes, and Probate Court settlements, covering the period between 1774 and 1781, and are of the utmost importance legally in the land holdings here, and genealogically for the family records they contain.

The lectures and special exhibits formed the spectacular part of the year's work, as they immediately attracted large numbers of people to the work of the Society. Five lectures were given under the auspices of the Society last year, and all were largely attended.

January 25th, Arthur C. Parker, N. Y. State Archaeologist, "Amazing Iroquois, the Red Conquerors of the Wyoming Valley".

Annual meeting February 8th, Rev. Dr. Herbert Burk, Director Valley Forge Museum, "Valley Forge".

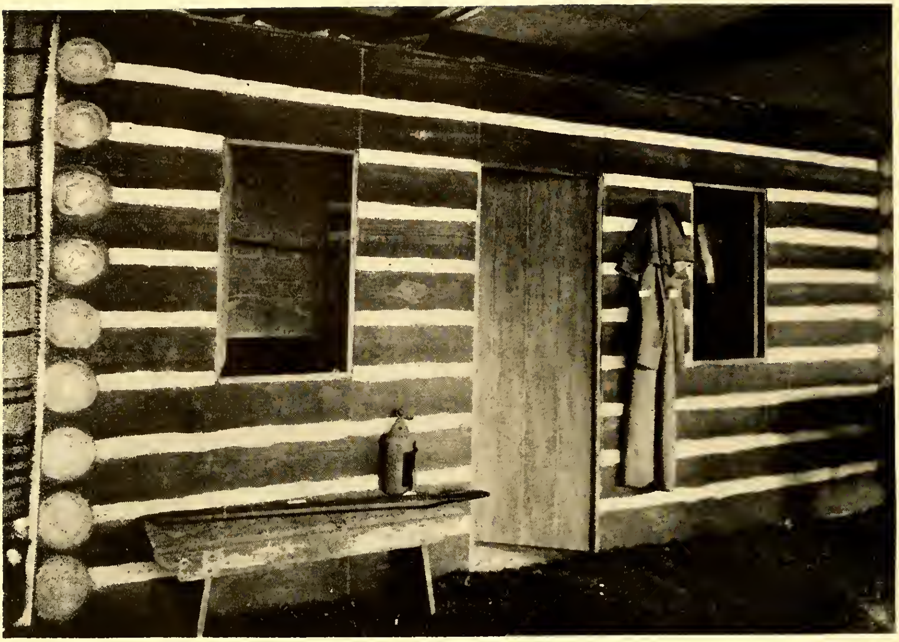
March 14th, Dr. Reinhardt Thiessen, of the United States Bureau of Mines, "Coal, its Origin, Structure and Composition".

April 23, a special meeting for children, Princess Chinquilla gave a dramatic presentation in costume, "The story of an Indian child".

December 12th, Dr. Bruno Roselli, of the Italian Department of Vassar College, "Excavating a Roman City in Northern Africa".

These lectures represent the different lines of interest of the Society, Local history; American Indian; American history; American Archaeology; Geology; Coal.

The two principal exhibits aroused so much interest that during the time the Log Cabin was open, more than five times as many visitors came as in the same period the year



FRONT OF LOG CABIN AS SEEN ON ENTERING THE READING ROOM
(For description see Frontispiece and p. XXVI.)

The frontispiece and cut give a good idea of the Log Cabin exhibit. The exterior was seen on entering the reading room. The view of the interior was obtained by walking through the book stacks at the end of the room. It was taken down in sections and is stored for future use. The experiment proves the practicability of temporary exhibit structures in an already overcrowded building.

The cabin experiment also proved of great publicity value to the Society, drawing an unprecedented number of visitors, five times as many as came during the same period the preceding year. Many who came had never before known of the existence of the Society. This gain in public acquaintance with the Museum and the actual additions to the Society's collections more than compensated for the upsetting of the reading-room and the time and trouble put into the preparation of the exhibit.

before, and of them many had never known before of the existence of the Society. The idea of the Cabin originated in connection with the "Better Homes Week" campaign, as a means of showing the present generation how much better homes are now, than in the days of their forefathers. Mr. Clark Wright Evans saw the possibility of building the cabin in front of the mantel and open fireplace of the reading room, drew the plans and elevations, and painted the exterior and interior walls of the cabin. The Hollenback Estate gave the time of two of their carpenters. The walls, windows and doors of the cabin were made of beaver board in sections, which admit of setting up and removal at any time. The exterior and interior were painted to represent logs; the stone chimney in its log wall seemed to be too real to be only painted boards. The total cost to the Society was $31.00 for materials only. Newspaper articles announced the exhibit and asked for the loan of suitable furnishings. So general was the response that soon the cabin and all the cases in the reading room were filled with furniture, brasses, china, handwoven linen and coverlets and clothing. These made a wonderful exhibit and best of all, many desirable articles have been given definitely or deposited here.

The China and Glass Exhibit was particularly beautiful. So many exquisitely rare and lovely articles came in that the available exhibit space was soon filled. At this point the Murray Furniture Company, Benesch's, the New Wall Paper Company and MacWilliam's readily granted a request to lend glass cabinets. The list of contributors testifies to the widespread interest and the variety of exhibits made. A direct benefit resulting from the exhibit has been the permanent loan of exhibit objects, and principally the purchase of one of the MacWilliam's cabinets by Mrs. C. D. Foster, who has filled it with an interesting deposit of articles from her extensive collections.

On exhibit in the building are two loan exhibits belonging to Miss Mary Sharpe, of Oriental fabrics and clothing, etc; the splendid collection of Indian baskets, which the Estate of Miss Elizabeth Sharpe has given the Society; a most interesting collection of relics of the American Wars, made by Mr. Charles M. Williams and given by his son, Mr. Bert Williams of Plainsville.

In addition to the regular daily work of cataloguing books, indexing publications, arranging museum articles, giving individual assistance to students, checking files, answering requests for assistance by mail, etc., several special lines of work have been continued from 1923. The Bamford-McCartney genealogical records have been arranged and made available for research; the copying of the gravestone inscriptions now totals 1051, from the originals in seven cemeteries of the Wyoming Valley and vicinity. These records, published in a local paper, have aroused much interest. The list of derivations of Pennsylvania place names has grown extensively. The investigation of the local "Rock shelters" in the Valley and vicinity has been completed by Mr. Max Schrabisch of Paterson, N. J. Splendid photographs of these interesting resting places of the Indians were made by Messrs. William Brodhun and G. W. Leach, Jr.

The "Indian Survey", begun in March, and made possible by the interest of a member of the Society, was undertaken because the story of the Indian culture of Pennsylvania has never been written, although other states with a less important Indian occupation, have investigated the evidences within their boundaries; and because the rapid disappearance of the evidences of the life of the Pennsylvania Indians through the encroachment of modern developments, makes it vitally desirable to gather all possible information before it is too late. The survey has been carried on under the direction of Arthur C. Parker, formerly N. Y. State Archaeologist, now Director of the Rochester Museum.

The effort to locate as many known sites as possible resolved itself into an "exploring expedition on paper". Approximately 13,000 letters were sent to the 2100 postmasters in the territory covered, Historical and Patriotic Societies, Farm Bureau and Grange leaders, foresters, school teachers, Scout masters, and many hundred known individual collectors in the forty-one counties comprising the Eastern portion of the State—west of the Alleghanies the tribal culture and relations were entirely different. Posters for distribution and question blanks to be filled out were enclosed in the letters. The newspapers throughout the region co-operated generously and published articles sent them explaining the survey, asking all individuals who had found Indian artifacts to communicate with the Society.

The subject of the Indian is apparently more popular with the average citizen than is commonly supposed. The Society did not wait long for the response. The postman was swamped with replies, varying in interest and importance from "Don't know nothing about these goods", to the invaluable information turned in by amateur collectors and well-known historians. Photographs of rocks covered with Indian picture-writing, soon to be covered by one of the superpower dams, have been received. Old trails soon to be obliterated by railroad cuts and fills have been brought to the Society's attention. Persons having knowledge of special regions have recorded on maps furnished them for the purpose, burial grounds, village and camp sites, câches, etc. All the information has been arranged by county and is being catalogued; the names of the many persons offering further help being listed separately, for future reference.

The effectiveness of the survey is evident in that more than 1900 sites have been reported.

The magnificent undertaking, to which this survey is merely preliminary, remains. The sites found must be investigated, and the major ones excavated by eminent archaeologists. Local histories and archaeologies must be searched for information on the subject. The report of all findings must then be compiled into a series of volumes and maps dealing in detail with each phase of the subject. By this method only can those problems of American anthropology, which depend for solution on a systematic knowledge of the Indians of Pennsylvania, be adequately solved. The undertaking is of national and international importance as is shown by the eager interest and offers of co-operation from the Heye Museum of the American Indian, the Natural History Museum, the National Research Council, and other institutions interested in preserving a fast disappearing history.

The Society has co-operated with the Conyngham Post of the G. A. R. in preparing the souvenir program for the State Convention in Wilkes-Barre in June. It has also co-operated with various other organizations and institutions by lending cuts, collecting information, furnishing illustrative material, etc.

Owing to the increased cost of publication and the inelasticity of the publication fund, no volume of Proceedings and Collections was published in 1924. Material for volume 19, covering 1923 and 1924, is being made ready for distribution the coming summer. In the meantime, the Thiessen lecture was published as a pamphlet preprint of this volume in order to make it more quickly available; over two thousand copies have been sold.

Several experiments were made in the hope of extending the work and usefulness of the Society. The August opening, tried successfully in 1923, resulted in 620 visitors in that period, as against 400 of 1923. A community calendar, undertaken to record future attractions and events, for the benefit of those planning others, has been widely consulted by organizations and individuals. A lecture for the children alone was offered in April and the Indian Princess Chinquilla held over 500 children enthralled for more than an hour and a half. One experiment bringing large results, was the writing of letters to officers of the family reunions, noted in the local newspapers, offering help in research, asking for material for the Society's collections, etc. Mr. A. W. Moss has lent his fine record of the Moss family for copying; Mr. Walter Vandermark will give the Society a carbon copy of his extensive and complete family record, and also will soon deposit with the Society the priceless early Justice of the Peace dockets of his grandfather in Newport Township. Such records as these have a great legal and genealogical value and should be placed where they will be kept safe, and also made available for research students of history and genealogy.

Endeavors have been made to bring the Society into touch with the larger bodies having similar interests, and with out-of-town individuals. This is done in part by the exchanges with the leading historical, genealogical, archaelogical and geological societies in the country, so that nearly all their publications are to be found in the Society's library.

The year as a whole has shown real progress, which has been largely due to the interest of the community in the work, their response to suggestions for assistance, their offers for help and co-operation, and the large donations of material for all the collections. The friendliness towards the Society is its greatest asset. Its greatest hope is that more people of the community will find it of actual usefulness to them in recreation, study and work.

Among the Books Accessioned are:

INDIAN COLLECTION.

Old Indian Chronicle, by S. G. Drake.
Myths of the Modocs, by Jeremiah Curtin.
Notes on Iroquios Archaeology, by A. Skinner.

Tahan, an autobiography, by Jos. K. Griffis.

History of the Five Indian Nations of Canada, by C. Colden.

Indian Basketry, by O. T. Mason.

American Archaeological Monographs, by C. B. Moore.

Ohio Archaelogy, by Gerould Fowkes.

GEOLOGICAL COLLECTION.

Outlines of Geologic History, by Willis, Baily & Salisbury.

Mineral Resources of Michigan, published by State.

Mineralogy of Pennsylvania, by S. G. Gordon.

AMERICAN HISTORY COLLECTION.

History of Rutgers College, 1766-1924.

History of Salem, Massachusetts, 1626-1637.

California, Its History & Romance.

Nullification Controversy in South Carolina, by C. S. Boucher.

Minutes of the Court of Fort Orange & Beverwyck, by A. J. F. VanLaer.

Travels in North America, 1829, by Basil King.

Voyages and Explorations of S. de Champlain.

Pennsylvania and the Federal Constitution.

Writings of American History, pub. by American Historical Association.

GENEALOGIES—AMERICAN, SCOTCH, AND ENGLISH.

The Baronage of Scotland.

Brainard Family in United States.

Maine Wills, 1640-1760.

Watertown Records.

The Peters of New England.

St. Mark's Parish, Culpeper Co., Virginia, by Philip Slaughter.

Sahler Genealogy.

Jaudon Family of Pennsylvania.

The Hardings.

Mervine' Genealogical Register.

An Introduction to Heraldry, by Hugh Clark.

Welsh Settlement of Pennsylvania.

History of Schoharie County, New York.

Tracy Genealogy.

Huguenot Ancestors, pub. by Huguenot Society of America.

Vital Records of Various Towns in Massachusetts.
Heraldric Illustrations, by Burke.
Renwick Family.
Newcomb Family 1618-1686.
Gernhardt Family.
John Munroe & Old Barnstable, 1784-1879.
The Ipswich Emersons, 1636-1900.
Lawrence Leach of Salem, Massachusetts.
Lexington Epitaphs.
Elisha Goodwin & His Descendants.
America Heraldica.

MISCELLANEOUS.

Brewster Shipmasters, by J. H. Sears.
Pennsylvania Trees, by J. S. Illick.
Journal of a Botanical Excursion, by Fred. Purch.
Household Manufactures in the United States, 1640-1860, by R. M. Tryon.
White Pine Series of Architectural Monographs.
Our Vanishing Wild Life, by W. T. Hornaday.
National Old Trails Road, National old trails association.
Pirates of the New England Coast, 1630-1730, by Dow & Edmonds.

GIFTS, 1924.

BOOKS, PAPERS, MAPS, PHOTOGRAPHS, ETC.

The Academy of Natural Sciences, Philadelphia: Academy's "Journal". 12 vols.
Academy of Political Science, New York: 1 vol.
John deKoven Alsop, Middleton, Conn.: book.
Dr. F. P. Archer: old magazines, newspaper clippings, photographs, books.
Mrs. H. E. Aston: book.
L. C. & Mary C. Barnes, Philadelphia: book.
Mrs. George P. Barton, Briarcliff Manor, N. Y.: book.
Helen Beach: book.
George R. Bedford: valuable papers, picture, file of Annual Register 1758-1825.
Charles E. Belknap, Grand Rapids, Mich.: 3 books.
Philip R. Bevan: old book.
C. W. Bixby: 7 old music books.
J. Andrew Boyd: book and 7 bulletins.
Fred Brenckman, Harrisburg, Pa.: book.

Allan C. Brooks, M. D.: badge, magazines.
Alexander G. Brown, Richmond, Va.: magazine.
Mrs. George H. Brown: book.
George W. Burch, Hartford, Conn.: book.
Charles Campbell Estate, Berwick, Pa.: 5 books.
Dartmouth College, Class of 1879: book.
Harvard College, Class of 1904: book.
Coal Trade Journal, N. Y. C.: book.
Percival Brooks Coffin, Chicago, Ill.: book.
Joseph D. Coons: newspapers, maps, old deeds, photographs, old papers & mss. of speeches.
Mrs. L. B. Corwin: 2 pictures, photograph, dictionary, newspaper.
Stewart Culin, Brooklyn Institute Museum: 13 pams. reprints of articles.
Mrs. Chas. Dana, Philadelphia: Judge Dana's Civil War records.
Miss Bess Davis: book.
William H. Demarest, Rutgers College, N. J.: book.
Mrs. Allan H. Dickson: 5 photographs.
Asa Don Dickinson, U. of P., Library, Philadelphia: 2 books.
Sherman A. Dilley: 3 old maps.
Mrs. Carrie C. Doe, Orleans, Vt.: book.
Elmer E. Doe, Orleans, Vt.: book.
Frances Dorrance: books.
Miss Sallie L. Dow: photograph of her father.
William L. Durland, West Wyoming, Pa.: newspapers, old letters, James Bird articles.
G. L. & H. E. Evans: book.
R. J. Fisher, Robesonia, Pa.: pamphlet.
Mrs. C. D. Foster: pamphlets, clippings, newspapers.
Louis Frank: 3 Pickering pamphlets.
Miss Isabel Gilchrist: old book.
C. K. Gloman: reprint of 1st issue of newspaper.
John P. Grace, Charleston, S. C.: book.
Dr. Mary Wolcott Green, Englewood, Fla.: book.
Emit D. Grizzell, U. of P.: book.
Mrs. Harry Grover: 11 books.
F. R. Hart, Boston, Mass.: book.
William S. Hart, Hollywood, Calif.: book.
John V. Heffernan: bound file Sunday Independent.
Hercules Powder Co., Wilmington, Del.: book.

Oliver C. Hillard: relief map of Panama Canal.

Mrs. W. E. Hinchliff, Rockford, Ill.: book.

Holland Society of New York: 1922-1923 year books.

Miss Anna W. Hollenback: framed pen sketch of Hollenback house.

Mrs. Lillian Jewell, Binghamton, N. Y.: Stereoscopic views of Wyoming Valley scenes and events.

Miss Emily Johnson: book.

Mrs. Mary Coffin Johnson, Brooklyn, N. Y.: book.

Charles E. Keck: clipping on Wm. Penn Treaty Tree.

Austin T. Kempton, D. D., Cambridge, Mass.: 30 Hiawatha pictures.

George W. Kropp: book.

Fayette Phelps Leach, E. Highgate, Vt.: 2 books.

George W. Leach: photograph of Washington elm.

Mrs. C. N. Loveland: 2 vols.

J. M. Lowe, Kansas City, Mo.: book.

Miss Hettie McClelland: portrait of Mr. Rutter.

Gilbert S. McClintock: Westmoreland records 2 v., W. H. & G. S. Proceedings 5 v. Hayden, Virginia genealogies.

John Steven McGroarty, San Gabriel, Calif.: book.

Edward F. McSweeney, Framingham, Mass.: book.

Miss Frances G. Markham: European war posters.

Marshall Jones & Co., Boston, Mass.: book.

Mrs. Charles A. Miner: book.

Clarence B. Moore: monographs on American archaeology.

Mrs. Wistar Morris, Overbrook: book.

A. W. Moss: 30 W.-B. Record almanacs, 61 National Geographic Magazines.

Mrs. Hugh Murray, Dallas, Pa.: newspaper.

National Research Council, Washington, D. C.: 9 bulletins.

C. H. Newhart: clipping.

D. L. O'Neill: book.

Eaton G. Osman, Chicago, Ill.: book.

Arthur C. Parker, Rochester, N. Y.: book.

E. W. Parker, Philadelphia, Pa.: photostat copies of 2 maps.

Penn Natl. Bank, Philadelphia, Pa.: pamphlet.

Pennsylvania State Library & Museum, Harrisburg, Pa.: books.

Sidney Perley, Salem, Mass.: book.

Aleida J. A. Pieters, Milwaukee, Wis.: book.

George W. Price, Jacksonville, Fla.: photograph.

Col. W. C. Price Estate: letters, books, newspaper clippings, photographs.

John Raeder, Nuangola, Pa.: books.

John Fewell Reynolds, Washington, D. C.: book.

Mrs. C. F. Richardson, Boston, Mass.: C. Miner letters & papers.

C. L. Robbins: newspapers.

Mrs. Walter R. Robbins, Newton Center, Mass.: book.

Lewis I. Roberts: books.

Miss Elizabeth Robinson: 27 v. Literary Digests.

Winthrop Sargent, Haverford, Pa.: 5 pamphlets.

Scranton City Chapter, D. A. R.: Yearbook 1924-1926.

Edwin Jaquett Sellers, Philadelphia, Pa.: book.

Sharpe, Elizabeth M., Estate of: magazines, books.

Elton R. Shaw, Berwyn, Ill.: book.

W. M. Sherrill: book.

Henry W. Shoemaker: 4 pamphlets.

Miss Jane A. Shoemaker: American magazine.

Charles R. Sligh, Grand Rapids, Mich.: book.

Carl G. Smedberg, N. Y. C.: books.

F. Dumont Smith, Hutchinson, Kansas: pamphlet.

Smith & Welles: magazines and photostats.

H. S. Smith: books, photostat.

Erskine L. Solomon: books, pamphlets.

Mrs. Ira R. Springer, Middletown, Pa.: book.

Philip E. Stauffer: photostats.

Miss Leila Sterling: book, newspapers.

Rev. S. E. Stofflet, Hazleton, Pa.: pamphlet.

Myer Strauss: pictures.

R. M. Tingley, Herrick Center, Pa.: book.

W. S. Tompkins: books.

Mrs. Benj. R. Tubbs, Gladstone, N. J.: pamphlet.

Ferdinand von Krug, Wyoming, Pa.: photographs.

Oscar D. von Engeln, N. Y. C.: book.

Raymond L. Wadhams, M. D.: books.

Edward R. Weidlein, Pittsburgh, Pa.: book.

Edward Welles, Jr.: books.

G. F. Wells, Columbia University: book.

Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.: pamphlet.

White Pine series of architectural monographs: v. 7 & 8.

William A. Wilcox, Scranton, Pa.: pamphlets.

Frank J. Wilder, Boston, Mass.: book.

J. B. Woodward: book.

Annie B. Wren: stereoscopic views of local scenes.

E. B. Yordy Co.: printing 1500 booklets on need of new building.

GENERAL MUSEUM ARTICLES AND GEOLOGICAL SPECIMENS.

D. C. Ashmead: coal rake used about 1870.

Miss Ella Bowman: old lantern & foot stove.

Joseph D. Coons: museum articles.

Marcy Dias: civil war commission, 1 Confederate and 1 Union sword.

Miss Sallie L. Dow: 12 love feast tickets of First M. E. Church of Wilkes-Barré.

Burton Eckert: minerals, pistol, coral.

Raymond Evans: petrified tree section.

Mrs. Inez V. Fehr: gun and cane.

Mrs. C. D. Foster: old poker, shovel and tongs.

Mrs. D. S. Helmar, Port Allegheny, Pa.: G. A. R. buttons.

Charles F. Hoover: American helmet.

Dorothy Jones: quartz.

Charles E. Keck: relic of Wm. Penn treaty tree.

Miss Hettie McClelland: old Liverpool pitcher.

Miss Frances G. Markham: civil war pistol.

Gen. Asher Miner Estate: collection old swords and firearms.

Mrs. Charles A. Miner: museum articles.

W. D. Morris, Jr.: saddle and coat of Captain J. Whitney of the civil war.

J. W. Pace: museum articles, 4 pieces of pewter, hand wrought nails & door lock, etc.

H. B. Payne: 2 paintings and a spinning wheel.

Frank Pearson: fossils.

Col. W. C. Price Estate: museum articles, medals, badges, etc.

Mrs. Elinor S. Rozelle: old "sun glass".

Mrs. Carl W. Schoch: hand woven linen tablecloth.

Erskine L. Solomon: museum articles, porcupine quills, bola knife, etc.

Myer Strauss: rattlesnake skin & kaleidascope.

Miss Jessie T. Sturdevant: Springfield rifle.

W. S. Tompkins: museum articles.

Mrs. A. M. Welles: museum articles.

Bert Williams, Plainsville, Pa.: museum articles relating to the different American wars.

Frederic E. Zerbey: fossil butternut.

INDIAN ARTIFACTS.

Rev. S. B. Bidlack, Watsontown, Pa.: Indian artifacts.

James Broadbent, Philadelphia: Indian hatchet head.

Charles DeLong, Allentown, Pa.: 5 rare arrow points.

Burton Eckert: Indian pottery pieces and flints.

Dr. Charles H. Miner: Indian articles.

Arthur C. Parker, Rochester, N. Y.: bone implements, and wampum.

Ralph Salsburg: flaked chips from Indian work shop.

Miss Elizabeth M. Sharpe Estate: American Indian baskets.

Mrs. Lewis H. Taylor: Navajo rug on weaving frame with implements.

Mrs. Stella L. Williams, Luzerne, Pa.: Indian moccasins.

COINS AND MONEY.

(Not Endowment Fund)

Malcolm Burnside: $25.00.

Leo Carey: 2 coins.

George H. Catlin, Scranton, Pa.: medals of Presidents, Huguenot half-dollar, $5.00.

Burton Eckert: coins, colonial money.

Oliver C. Hillard: coins.

William Paul: English coins.

Col. W. C. Price Estate: Colonial bills.

Harry B. Schooley: Huguenot-Walloon half-dollar.

Mrs. Sylvia C. Teeple, Lookout, Pa.: Cash $1.00.

MISCELLANEOUS.

Wm. G. Ackerman: Tracing of Catlin horn drawings.

Ziba Bauer: butterflies.

Boston Store: paper for cabin ceiling.

Duncan Brown: butterflies.

Samuel Chase: wooden boxes.

Miriam Howells: framed butterflies.

Mrs. F. C. Johnson: flag.

Kingston Coal Company: calendar.

John Markey: carved wood Indian heads, (ten).

LOANS 1924.

Olden time furniture and household articles for the Log Cabin Exhibit in May-June, 1924, lent by:

Mrs. Fred J. Beach
Miss Helen Beach
Mrs. Frank S. Bittenbender
Boston Store
Mrs. Allan C. Brooks
Mrs. D. W. Dodson
Mr. and Mrs. Clark Wright Evans
Mrs. George B. Kulp
Mrs. Charles A. Miner
Amos S. Mitchell
Miss Bertha Mitchell
Mrs. Charles F. Murray
William Robbins
H. A. Smith
W. S. Tompkins
Mrs. William R. Toomb
Mrs. C. R. Wood
Frederic Zerbey

LOANS FOR OLD CHINA AND GLASS EXHIBIT.

Mrs. Eugene B. Ayres
Miss Helen Beach
Mrs. Harry M. Beck
Mrs. George R. Bedford
Benesch & Sons
Mrs. Earl F. Bogert
Miss Edith Brower
Miss M. G. Brundage
New Wall Paper Co.
Mrs. Charles W. Dana
Mrs. G. R. Deatrick
Mrs. Allan H. Dickson
Mrs. D. W. Dodson
Mrs. Benjamin Dorrance
Miss Sallie L. Dow
Mrs. Susie C. Drake
Mrs. John Dugan
Mrs. Michl. Dwyer, E. Plymouth, Pa.
Mr. & Mrs. Clark Wright Evans
Miss Mabel D. Fleckno
Mrs. C. D. Foster
Miss Mary Elliott Gates
Miss Catherine Gregory
Dr. Malcolm C. Guthrie
Miss Kathleen Hand
Mrs. Frederick Hillman
Miss Anna Hollenback
Mrs. R. O. Hughes
Mrs. C. P. Hunt
Mrs. J. H. Jonathan
A. C. Jones
Mrs. Wayne Lance
Mrs. Charles Law, Pittston, Pa.
George W. Leach, Jr.
Mrs. Edward T. Line, Pittston, Pa.
Mrs. Griffith Lougher
Miss Hettie McClelland
Gilbert S. McClintock
MacWilliam's
Miss Frances G. Markham
Mrs. Elizabeth Masten
Miss Eleanor May
Mrs. D. Mendelsohn
Mrs. Burr C. Miller
Mrs. Charles A. Miner
Mrs. A. Murray
Murray Furniture Co.
Miss Myra Poland
Mrs. H. C. Rinehimer.
William Robbins
Miss Mabel F. Robinson
Miss Marianna F. Ross
Mrs. Leslie S. Ryman
Mrs. E. G. Scott
Miss Jane Shoemaker
Mrs. Charles I. Stout
Miss Margaret Struthers
Mrs. Lewis H. Taylor
Miss Louise Thomas
Miss Rosa Troxell
Mrs. S. Van Wagenen
Mrs. William R. Toomb
Mrs. Montgomery Wildermuth
Mrs. C. B. Williams and Miss Eleanor A. Walton
Mrs. John Wilson
Mrs. S. M. Wolfe
Mrs. C. R. Wood
The Misses Wren

DEPOSITS, 1924.

Mrs. Minnie E. R. Grier: powder horn, broiler, plate warmer, pie lifter.

Mrs. Anna M. Welles: 5 diaries of Miss Susan C. Hunt, 4 old volumes.

W. S. Tompkins: swingling knife used for preparing flax, turkey call, cap box, charger for measuring powder.

Mrs. C. D. Foster: museum articles, china, glass, cabinet.

Miss Josephine Loveland: old jewelry.

Mrs. George Wiegand: glass liberty bell plate.

Mrs. Frances M. Haynes: old spectacles (omitted in 1923 report).

Rev. V. D. Naugle: Lutheran Church records of Berwick, Pa. and vicinity.

LOANS, MISCELLANEOUS, 1924.

Robert I. Barry, Scranton, Pa.: silk crazy quilt.

George Slocum Bennett, 2d: commemorative medals.

Mrs. Permelia Keeler: portrait, Mrs. Lucy Miller Stevens.

George McGuigan: brass tea kettle and alcohol burner.

Mrs. Charles A. Miner: household articles, baskets, Russian embroidery.

A. W. Moss: mss. genealogy.

K. J. Ross, West Pittson: mss. genealogies.

Mrs. C. R. Wood: compass.

George Zemany, Nescopeck, Pa.: 2 Indian relics.

William Robbins: Indian artifacts, petrified human heart.

Mr. Clark Wright Evans: flute played by Mr. Onderdonck in the Dutch Reform Church in New York.

NEW MEMBERS, 1924—LIFE MEMBERS.

Mr. John H. Abbott
Dr. Edward W. Bixby
Mr. Charles Brodhead
Mr. George Guthrie Conyngham
Mr. William Lord Conyngham
Mr. James H. Hughes
Mrs. F. C. Johnson
Mr. George Loveland
Miss Josephine N. Loveland
Miss Margaret McLean MacWilliam's
Mr. Burr Churchill Miller, Jr.
Mr. Reynolds Churchill Miller
Mrs. Dorrance Reynolds
Miss Helen Ross
Miss Mary L. Ross
Mr. A. J. Sordoni
Hon. Louis A. Watres

Deceased

Mr. James Cool
General C. Bowman Dougherty
William Griffith (Corresponding member)
General Asher Miner (Life member)
Colonel William C. Price
Mrs. Charlotte M. Ryman (Life member)
Miss Elizabeth Sharpe (Life member)
Miss Sallie Sharpe (Life member)

Resigned

Mr. C. H. English (Out of town)
Rev. James M. Farr, D.D. (Out of town)

Dorrance Reynolds,
President.

REPORT OF THE TREASURER

Of the Wyoming Historical and Geological Society,
Year ending December 31, 1924.

RECEIPTS.

Balance on hand, January 1, 1924:		
Check Account	$ 386.71	
Savings Account	331.76	$ 718.47
Investment Account, Investments paid	5,698.12	
Investments made	5,102.75	
		595.37
Life Memberships		1,200.00
Income Account, Income from investments	$ 4,949.75	
Sale of books and other publications	111.55	
Indian relics, sale of	70.00	
Geneaological services	21.50	
Luzerne county, appropriation	200.00	
Membership dues, annual dues	1,925.25	
Sale of old papers	.88	
Sale of photo	2.50	
Sale of Thiessen pamphlets	357.00	$ 7,638.43
Special:		
Shepherd-Rust Electric Co., refund of amount paid for one Iron Lantern	$ 35.75	
Malcolm Burnside, gift toward Schrabisch work	25.00	
Mary J. Foster, gift toward purchase of china closet.	59.00	
Frances Dorrance, loan to Society	40.00	
Frances Dorrance, returned salary for the months of November and December	300.00	
Smith & Welles, gift toward photostating old Westmoreland records	563.73	
Abram G. Nesbitt, gift toward photostating old Westmoreland records	750.00	1,773.48
		$11,925.75

EXPENDITURES.

Addresses, delivered at several meetings during the year		$ 151.00
Books Purchased, books and publications purchased		235.25
Expense Account, operating expenses, supplies, printing, binding, etc.		1,357.82
Incidental Account, petty cash used in rooms		163.00
Interest on Special Funds, paid to Director		644.60
Insurance Account, compensation insurance policy		15.00
Salaries		5,288.00
Telephone Service		84.83
Special Work:		
Max Schrabisch, archeological investigation	$ 541.20	
Photostating old Westmoreland records	1,311.00	
		1,852.20
Balance on hand, December 31, 1924:		
Check Account	$ 6.92	
Savings Account	2,127.13	2,134.05
		$11,925.75

SPECIAL FUNDS.

1.	The Zebulon Butler Fund Given by descendants of Colonel Zebulon Butler for Ethnological purposes.	$ 1,000.00
2.	The Coxe Family Fund Given by the Coxe family of Drifton for the annual publication of the Society.	10,000.00
3.	The Horace Edwin Hayden Fund Created by Rev. H. E. Hayden for Geological lectures.	1,500.00
4.	The Andrew Hunlock Fund Given by Andrew Hunlock for binding.	1,000.00
5.	The Ralph D. Lacoe Fund Given by the family of Ralph D. Lacoe for Geology.	1,000.00
6.	The Augustus C. Laning Fund Given by his daughter, Mrs. George Cotton Smith, for Historical lectures.	1,000.00
7.	The Charles A. Miner Fund Given by the family of Charles A. Miner for Geology.	1,000.00
8.	The Sheldon Reynolds Fund Given by the family of Sheldon Reynolds for a memorial library of rare American history.	1,000.00
9.	The Stanley Woodward Fund Given by the sons of Stanley Woodward, for Historical lectures.	1,000.00
10.	The Harrison Wright Fund Given by relatives of Harrison Wright for a memorial library of English heraldry and genealogy.	1,000.00
11.	The Joseph Swift Balch Fund Given by his brother for the purchase of books (not genealogical).	2,000.00
12.	The Katherine (Searle) McCartney Fund Bequeathed by her daughter for the purchase of genealogical books.	500.00
13.	The Dr. Charles F. Ingham Fund Geology. (Minimum, $1,000).	520.00

The above funds are all to be kept intact, the interest only being available for the purpose specified in the gift. There are other needs for which members of the Society are urged to contribute to meet the growing work of the Society. These may be given direct, or as memorials, or in the form of bequests to the Society.

GENERAL SUMMARY.

	1923	1924
Visitors	6,689	8,422
Students	744	580
Government documents received	1,032	1,277
Volumes presented	200	200
Volumes purchased	93	200
Volumes received through exchange	400	200
	1,725	1,877

OFFICERS OF THE SOCIETY, 1858-1925.

PRESIDENTS.

*James Plater Dennis; 1858, 1874.
*Gen. Edmund Lovell Dana; 1858-1860, 1884-1888.
*Gen. William Sterling Ross; 1861.
*Charles F. Ingham, M. D.; 1862-1863, 1882-1883.
*Welding Fell Dennis, M. D.; 1864-1865.
*Volney Lee Maxwell; 1866-1867.
*Martin Coryell; 1868.
*Hon. John Nesbitt Conyngham, L. L. D.; 1869.
*Hon. Hendrick Bradley Wright; 1870-1872.
*Calvin Wadhams; 1873.
*Payne Pettebone; 1875.
*Andrew Todd McClintock, L. L. D.; 1876, 1889-1891.
*Calvin Parsons; 1877-1878, 1892-1893.
*John Welles Hollenback; 1879-1880.
*Hon. Charles Abbott Miner; 1881.
*Sheldon Reynolds; 1894.
*Hon. Stanley Woodward; 1895-1906.
*Maj. Irving Ariel Stearns; 1907-1920.
Col. Dorrance Reynolds; 1920-

VICE-PRESIDENTS.

*Charles F. Ingham, M. D.; 1858-1859, 1861, 1884-1889.
*Andrew Todd McClintock, L. L. D.; 1860, 1864-1865, 1869-1875.
*Hon. Hendrick Bradley Wright; 1860, 1866-1867, 1869.
*George Matson Hollenback; 1860-1861.
*Charles Denison Shoemaker; 1860.
*William Wallace Loomis; 1861.
*Edward Rodman Mayer, M. D.; 1861, 1879-1883.
*Volney Lee Maxwell; 1862-1863, 1865.
*Payne Pettebone; 1862-1874.
*Charles Morgan; 1862-1863.
*David Richardson Randall; 1862-1863.
*Rev. George David Miles; 1864-1865.
*Rev. Alexander A. Hodge; 1864.
*Col. Charles Dorrance; 1866-1867, 1881.
*Hon. John Nesbitt Conyngham, L. L. D.; 1866-1867.
*Augustus C. Laning; 1868.
*John Milton Courtright; 1868.
*Stiles Williams; 1868.
*Thomas Ferrier Atherton; 1869.
*Calvin Parsons; 1870-1876, 1882-1884, 1889-1891, 1894-1899.
*Douglass Smith; 1870-1872.
*James Plater Dennis; 1873, 1875.
*Hon. Ziba Bennett; 1874, 1876-1878.
*John Welles Hollenback; 1876-1878.
*William H. Sturdevant; 1876-1880.
*Hon. Charles Abbott Miner; 1877-1880.
*Joseph A. Murphy, M. D.; 1879-1881.
*William Lord Conyngham; 1881.
*Rev. Henry Lawrence Jones, S. T. D.; 1882-1914.
*Lewis Compton Paine; 1882-1883.
*Hon. Eckley Brinton Coxe; 1884-1895.
*Hon. Lazarus Denison Shoemaker; 1890-1893.
*Ferdinand Vandevere Rockafellow; 1892-1893.
*Hon. Stanley Woodward; 1894.
*Col. George Murray Reynolds; 1896-1904.
*Rev. Francis Blanchard Hodge, D. D.; 1896-1905.
*Hon. Jacob Ridgeway Wright; 1900-1904.
Dr. Lewis Harlow Taylor, M. D.; 1905-
*Maj. Irving Ariel Stearns; 1905-1906.
*Levi Ives Shoemaker, M. D.; 1906-1909.
Col. Dorrance Reynolds; 1906-1920.
William Hillard Conyngham; 1910-
*Hon. John Butler Woodward; 1914-1925.
Gilbert Stuart McClintock; 1921-
Abram Goodwin Nesbitt; 1925-

CORRESPONDING SECRETARIES.[†]

*William Penn Miner; 1858.
*Welding Fell Dennis, M. D.; 1860-1862.
*Gen. Edmund Lovell Dana; 1862-1863, 1876-1879, 1881-1883.
*James Plater Dennis; 1864-1865.
*Martin Coryell; 1866-1868, 1870-1875.
*Calvin Wadhams; 1869.
*Douglass Smith; 1880.
*Sheldon Reynolds; 1884-1894.
*Rev. Horace Edwin Hayden; 1894-1917.
*Christopher Wren; 1918-1922.

RECORDING SECRETARIES.

*George Hollenback Butler; 1858-1859.
*B. A. Barnes; 1860-1861.
*Calvin Wadhams; 1862-1865, 1870-1871.
*Latham W. Jones; 1866-1869.
*Harrison Wright, Ph. D.; 1872-1885.
*Hon. Jacob Ridgeway Wright; 1885-1886.
*Simon Cameron Struthers; 1887-1890.
Joseph David Coons; 1891-1893.
*Sidney Robey Miner; 1894-1913.
Samuel Cogswell Chase; 1914-

TREASURERS.

*John Butler Conyngham; 1858-1861.
*Calvin Wadhams; 1862-1867.
*David Chase Harrington; 1868.
*Latham W. Jones; 1869.
*Martin Coryell; 1870-1874.
*Douglass Smith; 1875-1879.
*Sheldon Reynolds; 1880-1882.
*Andrew Fine Derr; 1883-1885.
*Andrew Hamilton McClintock; 1886-1895.
*Frederick Charles Johnson, M. D.; 1896-1906.
Charles Welles Bixby; 1907-1912.
Charles Wilbur Laycock; 1913-

ASSISTANT TREASURERS.

Lottie Briggs; 1907-1912.
S. Dutt Wolcott; 1913-

DIRECTORS.[‡]

Frances Dorrance; 1922-

LIBRARIANS.

*Welding Fell Dennis, M. D.; 1858-1859, 1862-1863.
*Charles F. Ingham, M. D.; 1860-1861, 1864-1867, 1869-1873.
*Frederick Charles Johnson, M. D.; 1874-1876.
*James Plater Dennis; 1877-1881.
Samuel French Wadhams; 1882.
*Andrew Hamilton McClintock; 1883-1885.
*Sheldon Reynolds; 1886.
*Hon. Jacob Ridgway Wright; 1887-1899.
*Rev. Horace Edwin Hayden; 1900-1917.
*Christopher Wren; 1918-1922.
Ernestine Martin Kaehlin; 1922-

ASSISTANT LIBRARIANS.

*Frederick Charles Johnson, M. D.; 1879-1880, 1890-1893.
Samuel French Wadhams; 1881-1882.
*George Mortimer Lewis; 1883-1885, 1887-1889.
*Sheldon Reynolds; 1886.
Harry Deitrick; 1894.
*Rev. Horace Edwin Hayden; 1895-1899.
Ernestine Martin Kaehlin; 1908-1922.
Frances Edna Brooks; 1924-

CATALOGUERS.

Clara Walker Bragg; 1904-1905.
Susan Foote; 1906.
Ernestine Martin Kaehlin; 1908-

[†] Office changed to Director, 1922.

[‡] Office established 1922.

ASSISTANTS.

Mrs. Louise (Frantz) Neuhouse; 1908-1910.
Mrs. Marion (Rudrauff) Strome; 1911-1920.
Stella E. Van Horn; 1920-22.
Mrs. Mary (Gillott) Oelschlager; 1922-1923.

ARCHIVISTS.‡

Edward Sweetser Tillotson; 1922-

TRUSTEES.

*Charles F. Ingham, M. D.; 1884-1889.
*Ralph Dupuy Lacoe; 1884-1889.
*Edwin Payson Darling; 1884-1889.
*Sheldon Reynolds; 1884-1886.
*Harrison Wright, Ph. D.; 1884-1885.
*Edward Welles; 1886-1914.
*Hon. Charles Abbott Miner; 1887-1903.
*Samuel LeRoi Brown; 1889-1906.
Lewis Harlow Taylor, M. D.; 1890-1893.
*Henry Harrison Harvey; 1890-1896.
Richard Sharpe; 1894-
*Andrew Fine Derr; 1897-1916.
*Henry Herbert Ashley; 1904-1923.
*Andrew Hunlock; 1907-1920.
Isaac Miner Thomas; 1915-
Henry Hunter Welles; 1916-1920.
*General Asher Miner; 1921-1922.
George Reynolds Bedford; 1921.
Malcolm Burnside; 1923-
Harry B. Schooley; 1923-
Theodore S. Barber; 1923-

CURATORS.

PALEONTOLOGY.

*Ralph Dupuy Lacoe; 1884-1899.
Joshua F. Welter; 1900-1917.

CONCHOLOGY.

*Charles F. Ingham, M. D.; 1884-1890.
*Maj. Irving Ariel Stearns; 1891-1897.
William Reynolds Ricketts; 1898-

MINERALOGY.

*Harrison Wright, Ph. D.; 1884-1885.
*Charles F. Ingham, M. D.; 1886-1890.
*Maj. Irving Ariel Stearns; 1890-1897.
William Reynolds Ricketts; 1898-

ARCHAEOLOGY.

*Sheldon Reynolds; 1884-1895.
*Hon. Jacob Ridgeway Wright; 1896-1904.
*Christopher Wren; 1905-1922.

NUMISMATICS.

*Rev. Horace Edwin Hayden; 1884-1917.
Lewis Harlow Taylor, M. D.; 1922-

PALEOBOTANY.

*William Griffith; 1904-1910.
William E. Traxler; 1911-1917.

METEOROLOGY.

*General Edmund Lovell Dana; 1884-1890.
*Rev. Francis Blanchard Hodge, D. D.; 1890-1899.

ANTHRACITE COAL AND COAL MINING.

Frederic Edgar Zerbey; 1923-

HISTORIOGRAPHERS.

*George Brubaker Kulp; 1884-1897.
Wesley Ellsworth Woodruff; 1897-1902.
*Rev. Horace Edwin Hayden; 1904-1906.
*Frederic Charles Johnson, M. D.; 1907-1913.
*Oscar Jewell Harvey; 1914-1922.
Kathleen Hand; 1922-

HISTORIANS.††

*Oscar Jewell Harvey; 1915-1922.
William Alonzo Wilcox; 1923-

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‡Office established 1922.
††Office separated from Historiographer, 1915.

OFFICERS FOR 1926.

President.

COL. DORRANCE REYNOLDS.

Vice Presidents.

DR. LEWIS HARLOW TAYLOR.
WILLIAM HILLARD CONYNGHAM.
GILBERT STEWART McCLINTOCK.
ABRAM G. NESBITT.

Director.

FRANCES DORRANCE.

Librarian.

ERNESTINE MARTIN KAEHLIN.

Assistant Librarian.

FRANCES E. BROOKS.

Archivist.

EDWARD SWEETSER TILLOTSON.

Recording Secretary.

SAMUEL COGSWELL CHASE.

Treasurer.

CHARLES WILBER LAYCOCK.

Trustees.

ISAAC M. THOMAS
MALCOLM BURNSIDE.
RICHARD SHARPE.
HARRY B. SCHOOLEY.
THEODORE S. BARBER.

Curators.

Numismatics—RICHARD E. DANA.
Mineralogy—WILLIAM REYNOLDS RICKETTS.
Anthracite Coal and Coal Mining— FREDERICK EDGAR ZERBEY.

Historian.

WILLIAM A. WILCOX.

Historiographer.

KATHLEEN HAND.

Finance.

RICHARD SHARPE.
ISAAC M. THOMAS.
HARRY B. SCHOOLEY.
THEODORE S. BARBER.
WILLIAM H. CONYNGHAM.

Chairmen of Annual Committees.

Lectures—MRS. FREDERICK HILLMAN.
Photographs—EDWARD WELLES.
Publishing—FRANCES DORRANCE.
Membership—FREDERICK HILLMAN.
Wyoming Sesqui-Centennial—H. B. SCHOOLEY.

MEMBERS WHO HAVE DIED SINCE THE PUBLICATION OF VOLUME XVIII.

1923.

ANNUAL.

Elmer E. Buckman.
Mrs. Ella H. Emory (Mrs. Louis).
S. Alexander Hodge.
Lyman H. Howe.
Mrs. William DeWitt Kennedy.
Andrew Todd McClintock, M. D.
Harry C. Mason.
John B. Reynolds.
Robert P. Robinson.
Lewis Leonidas Rogers, Sr., M. D.
Rev. W. Scott Stites.
Dunning Sturdevant.

LIFE.

H. H. Ashley.
Thomas Henry Atherton.
Mrs. Anna Bennett (Phelps) Burrows.

BENEFACTOR.

John Welles Hollencback.

1924.

ANNUAL.

James Cool.
William C. Price.

LIFE.

General Asher Miner.
Mrs. Charlotte M. (Rose) Ryman.
Elizabeth Montgomery Sharpe.
Sallie Sharpe.

CORRESPONDING.

William Griffith.

NECROLOGY.

HERBERT HENRY ASHLEY,

Born 1 Dec., 1843, at Nesquehoning, Pa.
Died 20 Jan., 1923, at Wilkes-Barré, Pa.

Herbert Henry Ashley, coal operator, manufacturer and banker, was the son of Lucius Doolittle and Caroline (Beadle) Ashley, and was descended through the ninth generation from Robert Ashley, who came from England and settled at Springfield, Mass., prior to 1638. His great-great-great grandfather, Daniel Ashley, was a member of the conference of the delegates of the "Five Nations" and the English Commissioners, which was held at Albany, and later at Boston, in 1723. His great-great grandfather, Daniel's son, Samuel, was a member of the Continental Congress, and a Colonel in the Revolutionary War, serving on the staffs of Generals Stark and Gates, and a judge of the Court of Common Pleas of Cheshire Co., N. H. His great grandfather, Samuel was also a Colonel in the same period.

Mr. Ashley was educated in the public schools of Mauch Chunk, and at Eastman's Business College, at Poughkeepsie, N. Y., and entered the office of the Lehigh Coal and Navigation Co. in Mauch Chunk. In 1864 he became accountant in the banking house of E. W. Clark & Co. in Philadelphia. Six years later he was placed in charge of the anthracite operations of the Lehigh Coal & Navigation Co. at their mines in Newport (now Wanamie), Pa., and in 1872 was transferred to Plymouth, Pa., to superintend the new mines of the company there. Upon the organization of the Parrish Coal Co. in 1884, Mr. Ashley was called to the management of the collieries at Plymouth and Buttonwood. He succeeded to the presidency in 1896, serving in that capacity until 1913, when the company was consolidated with the Lehigh & Wilkes-Barré Coal Co., of which company he became a director.

Mr. Ashley was active in the organization and operation of the Red Ash Coal Co., of Wilkes-Barré, the Langcliffe Coal Co., of Avoca, and the West End Coal Co. of Moca-

THE NATIONAL CYCLOPEDIA OF AMERICAN BIOGRAPHY

H. H. Ashley

PLATE FURNISHED BY FAMILY

naqua, Pa. During the anthracite strike of 1902, Mr. Ashley was president of the independent operators, and representative of that body at the negotiations with the miners.

While he was chiefly interested in the mining of anthracite coal his interests were broad and varied. He was president of the Hazard Manufacturing Co. of Wilkes-Barré, makers of wire rope; a director of the Vulcan Iron Works, and of the Wilkes-Barré Iron Manufacturing Co.; director and vice-president of the First National Bank of Wilkes-Barré; and a partner in the mercantile firm of Ashley, Hunt & Co., of Plymouth, and in the coal sales business of Parrish, Phillips & Co. of New York City. He was a life member of the American Institute of Mining Engineers; the Sons of the Revolution; the Masonic fraternity; the Independent Order of Odd Fellows; the Pennsylvania Society of New York; the Railroad Club of New York City; the Westmoreland Club (Wilkes-Barré); and the National Rifle Association.

In his religious affiliations he was an Episcopalian.

Mr. Ashley was a quiet, thoughtful man, loyal to his friends and to his ideals; of unimpeachable personal integrity and soundness of judgment. He occupied a position of prominence in the Wyoming Valley, not alone as a business executive and a pioneer in the anthracite coal industry of that locality, but also as a man and citizen of the highest type.

He married (1) 23 October, 1867, Sophie Bixler Struthers, of Harrisburg, Pa., who died in 1871, leaving one child, Sophie Ellen, wife of Dr. Charles D. Carr, of Philadelphia; married (2), 15 December, 1875, Lydia Kreidler, daughter of Oliver Davenport, of Plymouth, Pa. Her great-grandfather, Captain Samuel Ransom was killed in the battle of Wyoming, while her grandfather, Colonel Georg P. Ransom, a lad at that time, also served in the Revolution, was taken prisoner by the Indians and taken to Canada, whence he made his escape. By his second marriage Mr. Ashley had two children; Marion Livia, wife of Frederick W. Ahlborn, of Wilkes-Barré, Pa., and Roccena Goss, wife of Walter A. Wolfe, of New Rochelle, N. Y.

Mr. Ashley became a member of the Wyoming Historical and Geological Society in 1895, and from 1904 until his death, he was a Trustee of the Society. In 1925 his three daughters made him a Memorial Endowment Member.

THOMAS HENRY ATHERTON,

born in Wyoming, Pa., July 14, 1853, died in Wilkes-Barre, May 30, 1923. Educated in the schools of Wilkes-Barre and graduated from Princeton University 1874. He became a prominent lawyer, banker, and citizen of Wilkes-Barre, and became a life member of the Wyoming Historical and Geological Society in 1881.

ELMER E. BUCKMAN,

born in Taylorsville, Bucks county, Pa. August 11, 1861, died August 25, 1923, Kingston, Pa. Mr. Buckman had been the cashier of the Wyoming National Bank of Wilkes-Barre since 1915. He became a member of the Society in 1896.

MRS. ANNA BENNETT PHELPS BURROWS,

the daughter of John Case Phelps and his wife, Martha Bennett Phelps, died January 13, 1923, in England. Mrs. Burrows was born in Wilkes-Barre and was a descendant of the brother of Frances Slocum, who is famous in this valley for having been stolen by the Indians at the time of the Wyoming Massacre. Mrs. Burrows became a life member of the Society in 1895.

JAMES COOL,

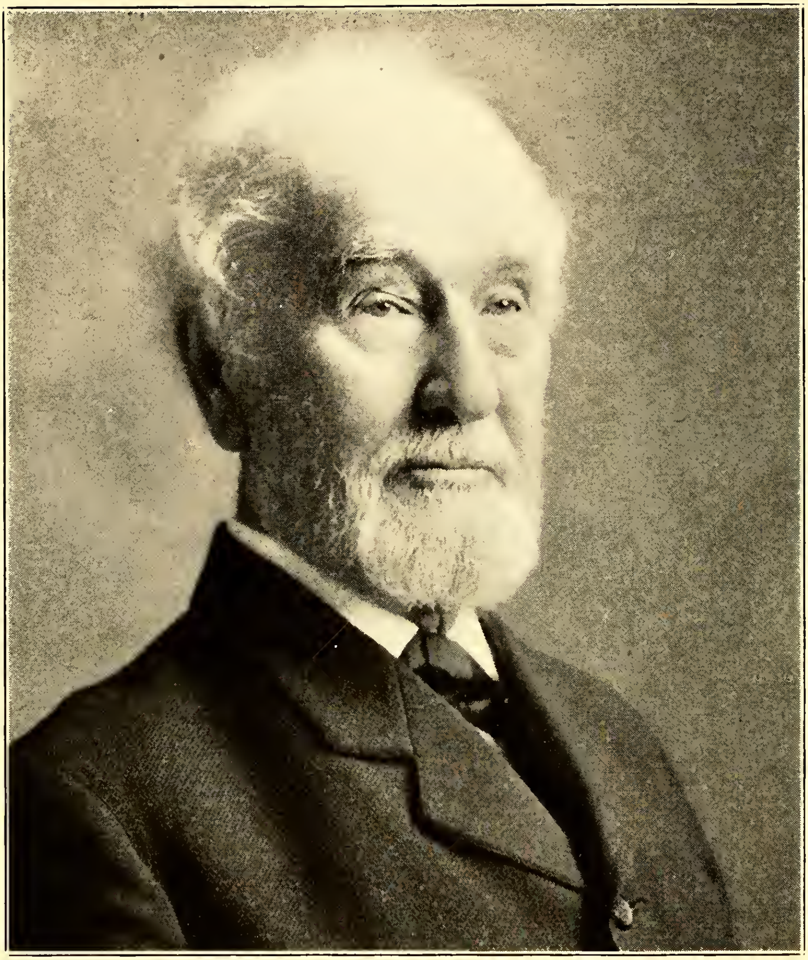
was born at White Haven, Pa., died November 1, 1924, at his home in Forty Fort, Pa. He was a well-known man in the real estate business. Mr. Cool became a member of the Society in 1915.

CHARLES BOWMAN DOUGHERTY,

General and former Commander of the National Guard of Pennsylvania, born September 3, 1860, died August 1, 1924. He was a life-long resident of Wilkes-Barre, well-known in civic and military affairs, and throughout his business career connected with the Susquehanna Collieries Company. He became a member of the Society in 1895.

MRS. ELLA HOLLENBACK EMORY,

widow of Louis Emory, died in Wilkes-Barre, July 2, 1923, aged 82 years. Born in Philadelphia, she was the daughter of George H. Picking and Ella Laning Picking. Mrs. Emory became a member of the Society in 1895.



JOHN WELLES HOLLENBACK

WILLIAM GRIFFITH,

prominent as a mining engineer and geologist, died at his home in West Pittston, Pa., January 19, 1924. Born January 12, 1855, he was educated in West Pittston schools and Lehigh University. He was a corresponding member of the Society.

STEPHEN ALEXANDER HODGE

was born in Wilkes-Barre, the son of the revered pastor of the First Presbyterian Church, the Rev. Francis Blanchard Hodge, D. D. He was graduated from Princeton University with the class of 1895, and soon after became associated with the Hazard Manufacturing Company with whom he remained during his life. He died suddenly November 9, 1923. Mr. Hodge became a member of the Society in 1897.

JOHN WELLES HOLLENBACK,

Born 15 March, 1827, at Wyalusing, Pa.
Died 19 June, 1923, at Wilkes-Barré, Pa.

John Welles Hollenback was the son of Charles Fisher and Ellen Jones (Hollenback) Welles. He was descended through the seventh generation from Thomas Welles of Wethersfield, Conn., the fourth Governor of the Connecticut Colony, as also from William Pyncheon, of Springfield, Mass., a patentee of the Massachusetts Colony, through his daughter, Mary, who married Elizur Holyoke. His maternal grandfather was George Hollenback (who married Prudence, daughter of Col. Elizur Talcott, of Glastonbury, Conn.) who was the son of Col. Matthias Hollenback, one of the survivors of the Battle of Wyoming, and a famous merchant of his time.

Mr. Hollenback was educated at Athens Academy, and on coming of age he became manager of the paternal estate at Wyalusing, a service he performed from 1848 to 1863, when he removed to Wilkes-Barré, which thereafter became his home. He was christened John Roset Welles, but at the request of his maternal uncle, George Matson Hollenback, in order to perpetuate the family name, had his name changed by the legislature in 1862, by dropping Roset and suffixing Hollenback.

Mr. Hollenback was a director of the People's Bank from its organization in 1872, and later its President until it became merged with the Miners Bank. It was in association with some of Wilkes-Barré's business institutions, however, that his full influence in financial circles was felt. He was President of the Bridge Company for many years; was President of the Hollenback Cemetery Association; President of the Wilkes-Barré Lace Company; a director of the Sheldon Axle Works, and also of the Hazard Manufacturing Company; and served on the board of the Spring Brook Water Company. Among other posts of responsibility served by him were the directorate of the Title Guaranty and Insurance Co., of Scranton, and of the Metropolitan Life Insurance Co., of New York.

In other ways he contributed to the city's progress, educationally and socially. He was elected a trustee of Lafayette College in 1865, continuing till death, serving as President of the Board in 1892, and at his death was the last living member of the Board as constituted upon his entrance upon it. He was a director of Harry Hillman Academy; helped establish the Wilkes-Barré Hospital, of which he was a director, and later a trustee; a director of the Young Men's Christian Association from its beginning, at one time being its President.

In 1914 his contribution of one hundred acres of land, to be known as "Hollenback Park", was the first real step toward the city's present park system. Up to that time the river common represented the principal rest-place; but with Mr. Hollenback's gift the city was given an impetus toward more and better parks, with satisfying results. He devoted much of his time some years back to a constructive interest in city affairs, and was elected a Republican member of the old Common Council, continuing for six years.

Mr. Hollenback was an elder in the Presbyterian Church for nearly three quarters of a century, and represented the Lackawanna Presbytery in the General Assembly of the Church. He was invariably in his place up to the last in the Sunday worship and at the midweek services, the weather permitting. It is said he read the Bible through from Genesis to Revelations twenty-two times.

A life member and through his gifts, a Patron of the Wyoming Historical and Geological Society, Mr. Hollenback filled the office of Vice-President from 1875 to 1878, and President from 1879 to 1880. He was also Vice-President of the Wyoming Commemorative Association.

Mr. Hollenback was married three times. His first wife was Anna E. Beard, of Brooklyn, N. Y., whom he wed 25 October, 1854. He married second, 13 December, 1866, Josephine Woodward, of New York City; and third, Amelia Beard, sister to his first wife. Nine children were born to him, of whom four daughters survive; the Misses Amelia B. and Anna W. Hollenback, Mrs. Dr. Lewis H. Taylor, and Mrs. Murray Gibson.

Mr. Hollenback's long life is typified by the modest but dignified solidity of the old Hollenback house which stood at the corner of River and Market streets, which he himself supplanted with the Coal Exchange building, the first really large business office structure in the city, and also by that other fine old Hollenback mansion at the corner of Franklin and Northampton streets, long since supplanted by the First Presbyterian Church, in the rearing of which he also had a large part. He stood out in leadership and in generosity because he was unselfish, because he believed it to be his duty to devote his talents to community betterment. His memory will live in grateful remembrance as long as the community itself endures.

LYMAN H. HOWE,

born in Wilkes-Barre, June 9, 1856, died January 30, 1923, educated in local schools. Mr. Howe early became interested in the kinetoscope of Thomas A. Edison and after intensive study invented a machine which finally gave admirable results, and the Lyman H. Howe Films Company is now known throughout the world. His career was a remarkably romantic one. Mr. Howe became a member of the Society in 1914.

MRS. AMELIA CARTER KENNEDY,

the wife of William DeWitt Kennedy, born in Lackawanna county, Pa., died January 23, 1923. She was the daughter of Pulaski Carter and Olive Ingalls Carter, his wife, and the descendant of Revolutionary soldiers. Mrs. Kennedy was interested in furthering patriotic causes and in historical subjects. She became a member of the Society in 1907.

DR. ANDREW TODD McCLINTOCK,

born in Wilkes-Barre, Pa., January 21, 1885, died at Newfoundland, N. J., August 4, 1923, as the result of an operation. He was educated at the Harry Hillman Academy of this city and graduated from Princeton University in 1907. He received his doctor's degree from the University of Pennsylvania in 1911, and studied a year at the University of Vienna in 1913. He had entered upon a brilliant career as a physician when he was overtaken by illness which caused his untimely death. He became a member of the Society in 1911.

HARRY C. MASON,

born in Pottsville, Pa., died in Wilkes-Barre, Pa., August 2, 1923, aged 62 years. Mr. Mason was well known as the land agent for the Lehigh & Wilkes-Barre Coal Company, and his hobby was the preservation of the forests. He became a member of the Society in 1912.

ASHER MINER,

General and Commander of 109th Field Artillery Regiment in the World War, was born in Wilkes-Barre, November 14, 1860; one of Pennsylvania's heroes in the World War and well-known as a business man; the president of the Miner-Hillard Milling Company. Died September 2, 1924. General Miner became a life member of the Society in 1895.

WILLIAM C. PRICE,

Colonel, aged 66, died July 31, 1924. Born in St. Clair, Schuylkill county, Pa., March 2, 1858. He was educated at the Phillips Academy, Exeter, N. H., and from there entered Harvard University. He was prominent as a lawyer in this city and in military affairs, having been Colonel of the Ninth Regiment, National Guard of Pennsylvania in 1894. Colonel Price became a member of the Society in 1916.

JOHN BUTLER REYNOLDS,

born in Wilkes-Barre, August 5, 1850, was a descendant of prominent families of the Wyoming Valley. He attended the Wyoming Seminary and Lafayette College, and later became a lawyer. He was well-known for his interest in the development of the Valley's methods of transportation. He died March 9, 1923. Mr. Reynolds became a member of the Society in 1895.

ROBERT P. ROBINSON

was born October, 1849, and died in Wilkes-Barre, July 4, 1923. Mr. Robinson was widely known in Luzerne county as a leader of the Republican party and an authority on the political history of the county during the last fifty years. Mr. Robinson became a member of the Society in 1896.

LEWIS LEONIDAS ROGERS, Sr., M. D.,

a well-known physician of Kingston, born at Huntsville, Pa., July 29, 1852, was educated at Wyoming Seminary, at the College of Physicians in Baltimore and the Jefferson Medical College in Philadelphia. Dr. Rogers was a descendant of old New England stock. He died December 20, 1923. He became a member of the Society in 1923.

MISS ELIZABETH MONTGOMERY SHARPE,

the daughter of Richard Sharpe, and his wife, Sallie Patterson Sharpe, of Wilkes-Barre, Pa., died June 6, 1924. Miss Sharpe was a public-spirited and patriotic citizen. At the time of her death she was the owner of the historic place, Woodlawn, Virginia, which originally was the gift of George Washington to his step-granddaughter, Nellie Custis, upon her marriage to Lawrence Lewis. Miss Sharpe became a life member of the Society in 1896.

MISS SALLIE SHARPE,

the daughter of Richard Sharpe, and his wife, Sallie Patterson Sharpe, died September 25, 1924. Miss Sharpe was well-known for her benevolent and patriotic qualities. She was a resident of Wilkes-Barre and became a life member of the Society in 1896.

THE REV. W. SCOTT STITES,

born August 9, 1847, at Cape May, New Jersey, died in Wilkes-Barre, March 8, 1923. He was graduated from Princeton University in 1869 with honors, and took up the study of law, which he gave up to enter the Presbyterian ministry. Rev. Mr. Stites was the minister of several churches in this locality. He became a member of the Society in 1914.

DUNNING STURDEVANT,

aged 77, died in Wilkes-Barre, June 25, 1923. He was descended from Samuel Sturdevant, a native of Connecticut, and was prominent as a business man and in the Methodist Episcopal Church. He became a member of the Society in 1912.

ROLL OF MEMBERSHIP,

December 31, 1925.

HONORARY.

Joseph Barrell, Ph. D.
*Rev. Wm. M. Beauchamp, S. T. D. Archaeologist, author.
Reuben Nelson Davis. Naturalist, author.
Rev. George P. Donehoo, Ph. D. Historian, archaeologist.
*Hon. Samuel Abbott Green, LL. D. Historian, genealogist, author.
*Rev. Samuel Hart, D. D. Historian, author.
Rt. Rev. J. M. Levering, D. D.
Thomas Lynch Montgomery, Litt. D. Librarian.
Arthur C. Parker. Archaeologist, author.
Frederick B. Peck, Ph. D. Geologist.
*Joseph George Rosengarten, LL. D.
William Berryman Scott, Ph. D. Geologist.
John L. Stewart, Ph. D.
Lion Gardiner Tyler, LL. D. Genealogist, author.
Rev. Ethelbert Dudley Warfield, LL. D. Historian.
David White. Geologist.
Edward H. Williams, Jr., F. G. S. A. Engineer, geologist, author.

Information on the life and work of these members will be much appreciated.

CORRESPONDING.

Edwin Swift Balch. Author.
Thomas Willing Balch. Lawyer.
John Seymour Ball.
*D. L. Belden. Ornithologist.
*A. F. Berlin. Archaeologist.
Maynard Bixby. Genealogist.
T. V. Braidwood.
Philip Alexander Bruce, LL. D. Histtorian, author.
*Edmund Mills Barton. Librarian.
D. M. Collins.
Stewart Culin.
Samuel L. Cutter.
John H. Dager.
N. H. Darton, F. G. S. A. U. S. Geologist.
Harry Cassel Davis, A. M., Ph. D., Sec. of George Washington University.
Rev. Samuel Bayard Dod, A. M.
Elnathan F. Duren.
George M. Elwood, F. R. M. S. Biologist.
William Frear, Ph. D. Chemist.
Hon. John Gosse Freeze.
Frank Butler Gay. Librarian.
P. C. Gritman.
Stephen Harding.
A. L. Hartwell.
Thomas Cramer Hopkins, Ph. D. Geologist.
Ray Greene Huling, Sc. D. Archaeologist.
Hon. William Hunting Jessup. Jurist.
Charles Johnson.
James Furman Kemp, Ph. D. Geologist.
Rev. Charles H. Kidder.
J. R. Loomis, M. D.
Hon. John Maxwell.
Edward Miller.
*Millard P. Murray.
John Peters.
James H. Phinney.
William Poillon.
S. R. Reading.
J. C. Rhodes.
Henry M. M. Richards. Historian, author.
William M. Samson.
Gertrude (Griffith) Sanderson.
W. H. Starr.
Thomas Sweet, M. D.
Samuel French Wadhams. Lawyer.
Abraham Waltham.
Margaret (Lacoe) White (Mrs. Baird).

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*Deceased.

Information on the life and work of these members will be much appreciated.

PERPETUAL MEMBERS.

(See page LX.)

Founders.

*James Plater Dennis.
*Col. John Butler Conyngham.
*Hon. Henry Martyn Hoyt.
*Hon. Stanley Woodward.

Patrons.

*John Welles Hollenback.
*Abram Nesbitt.

Endowment.

*Henry Herbert Ashley (memorial by his three daughters).
*Eckley Brinton Coxe, 2nd.
*Lillian Foster (memorial by her mother).

Benefactors.

Edwin Swift Balch.
*Joseph Swift Balch.
*George Slocum Bennett.
*Zebulon Butler.
Sophia E. (Norris) Coxe (Mrs. Alexander Brinton).
*Sophie G. (Fisher) Coxe (Mrs. Eckley Brinton).
*Benjamin Dorrance.
*Rev. Horace Edwin Hayden.
Amelia Beard Hollenback.
*Matthias Hollenback.
*Andrew Hunlock.
*Steuben Jenkins.
*Frederick Charles Johnson, M. D.
*Rev. Jacob Johnson.
Fred Morgan Kirby.
*Ralph D. Lacoe.
*Augustus C. Laning.
*Hon. Charles Miner.
*Hon. Charles Abbott Miner.
*Sidney Roby Miner.
Abram Nesbitt, 2nd.
Abram Goodwin Nesbitt.
*James Nesbitt.
Samuel Nesbitt.
*Isaac Smith Osterhout.
Anna Payne.
*Sheldon Reynolds.
*Elizabeth (Reynolds) Ricketts (Mrs. R. B.), (memorial by Mrs. W. S. McLean, Jr.).
*William Sterling Ross.
Anne E. (Hoyt) Shoemaker (Mrs. George).
*Elizabeth (Laning) Smith (Mrs. George Cotton).
*Sara (Nesbitt) Smythe (Mrs. Hugh).
*Major Irving Ariel Stearns.
Anna Hollenback Taylor.
Lewis Harlow Taylor, M. D.
Emily (Hollenback) Taylor (Mrs. Lewis H.).
*Edward Welles.
Edward Welles, Jr.
William A. Wilcox.
*Hon. Stanley Woodward.
*Anna Wright.
*Harrison Wright.

Life.

*Lucy W. Abbott.
John H. Abbott.
Frederick W. Ahlborn.
Marion (Ashley) Ahlborn (Mrs. F. W.).
*Emily Isabella Alexander.
*Caroline (Beadle) Ashley (Mrs. H. H.).
*Lucius Ashley.
Mary Slocum (Butler) Ayres (Mrs. Eugene B.).
Katherine (Derr) Barney (Mrs. Austin D.).
*Gustav Adolph Bauer.
George Reynolds Bedford.
Emily (Fuller) Bedford (Mrs. Geo. R.).
*Martha Bennett.
*Priscilla (Lee) Bennett (Mrs. Ziba P.).
Charles Welles Bixby.
Edward Welles Bixby, M. D.
*Joseph Habersham Bradley, Jr.
*William Brisbane, M. D.
Charles Brodhead.
*Robert Packer Brodhead.

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*Deceased.

Fannie (Loveland) Brodhead (Mrs. R. P.).
Edith Brower.
*Samuel LeRoi Brown.
Emily (Ryman) Burlingham (Mrs. Edward J.).
*Phineas M. Carhart.
George H. Catlin.
*Sterling Ross Catlin.
George Guthrie Conyngham.
John Nesbitt Conyngham.
Bertha (Robinson) Conyngham (Mrs. John N.).
*Mae (Turner) Conyngham (Mrs. W. H.).
William Hillard Conyngham.
*William Lord Conyngham.
William Lord Conyngham, 2nd.
Henry Hall Covell, M. D.
*Alexander Brinton Coxe.
*Eckley Brinton Coxe.
*John M. Crane.
*Nathan Beach Crary.
*Edmund Lovell Dana.
*Alice (McClintock) Darling (Mrs. Vaughn).
*Edward Payson Darling.
Thomas Darling.
Dorothy Ellen (Dickson) Darte (Mrs. Franck G.).
Andrew Livingston Davenport.
*Andrew Fine Derr.
Andrew Fine Derr, Jr.
Elizabeth Lowrie Derr.
Harriet (Lowrie) Derr (Mrs. Andrew F.).
*Henry Haupt Derr.
*Mary D. (Fell) Derr (Mrs. H. H.).
Thompson Derr, 2nd.
*Allan Hamilton Dickson.
Kate (Pettebone) Dickson (Mrs. Allan H.).
*Charles Dorrance.
*John Dorrance (Rev.).
*Alexander Farnham.
*Jesse Fell.
*Liddon Flick.
*Charles Dorrance Foster.
Mary Jane (Hoagland) Foster (Mrs. C. D.).
*Joseph Wright Graeme.
Sarah H. (Wright) Guthrie (Mrs. Geo. W.).
*Elisha Atherton Hancock.
*Garrick Mallery Harding.
Daniel L. Hart.
*Henry Harrison Harvey.
*Jameson Harvey.
*Jennie (DeWitt) Harvey (Mrs. H. H.).
Robert R. Harvey.
*James C. Haydon.
Doris Hillman.
Frances Parrish Hillman.
Frederick Hillman.
Mabel (Murphy) Hillman (Mrs. Frederick).
George Baker Hillman.
*Henry Baker Hillman.
Anna Welles Hollenback.
*George Matson Hollenback.
*Juliette Genêve Hollenback.
*Elizabeth Waller Horton.
*Abraham Goodwin Hoyt.
*Augusta Hoyt.
*Edward Everett Hoyt.
*John Dorrance Hoyt.
*Martha Goodwin Hoyt.
James H. Hughes.
*Francis William Hunt.
*Charles Farmer Ingham, M. D.
Georgia (Post) Johnson (Mrs. F. C.).
Frederick Green Johnson.
*Edwin Horn Jones.
*Rev. Henry L. Jones, S. T. D.
Lawrence B. Jones.
Martha (Bennett) Jones (Mrs. Lawrence B.).
*Richard Jones.
Jessie A. (Owen) Kirby (Mrs. Fred. M.).
*Charles P. Knapp, M. D.
*George Brubaker Kulp.
*William Arthur Lathrop.
Harriet (Williams) Lathrop (Mrs. W. A.).
*Woodward Leavenworth.
*Woodward Leavenworth, Jr.
*George Cahoon Lewis.
*Edward Sterling Loop.
Charles Noyes Loveland.
*Elizabeth Shephard Loveland.
*George Loveland.
George Loveland.
Josephine N. Loveland.
*William Loveland.
*Andrew Hamilton McClintock.

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*Deceased.

*Augusta (Cist) McClintock (Mrs. Andrew Todd).
Margaret McLean.
MacWilliam's.
*William Ross Maffet.
*Col. John Miner Carey Marble.
Alvan Markle.
John Markle.
Burr Churchill Miller, Jr.
Reynolds Churchill Miller.
*Asher Miner.
Charles Howard Miner, M. D.
*Eliza Ross (Atherton) Miner (Mrs. C. A.).
*Charles Morgan.
*Lawrence Myers.
*Frederick Nesbitt.
Fredericka Nesbitt.
*George Francis Nesbitt.
*Ralph Nesbitt.
*Sara Myers (Goodwin) Nesbitt (Mrs. Abram).
Daniel Edwards Newell.
Esther (Shoemaker) Norris (Mrs. R. V. A.).
*Anna (Miner) Oliver (Mrs. Allan M.).
*Lewis Compton Paine.
*Henry W. Palmer.
*Nathan Grier Parke.
*Charles Parrish.
Ella (Reets) Parrish (Mrs. Fred.).
*Mary (Conyngham) Parrish (Mrs. Charles).
*Calvin Parsons.
*Oliver Alphonso Parsons.
*Joseph Emmet Patterson.
William Grant Payne.
William Theodore Payne.
*Payne Pettebone.
*Francis Alexander Phelps.
*John Case Phelps.
*Martha (Bennett) Phelps (Mrs. John C.).
Rollo Green Plumb.
William John Raeder.
*John Reichard, Jr.
*Annie B. (Dorrance) Reynolds (Mrs. Sheldon).
*Benjamin Reynolds.
Grace (Fuller) Reynolds (Mrs. Benjamin).
Col. Dorrance Reynolds.
Mabel (Doudge) Reynolds (Mrs. Dorrance).
Edith Lindsley Reynolds.
*George Murray Reynolds.
Schuyler Lee Reynolds.
*William Champion Reynolds.
*Charles Francis Richardson.
Elizabeth Miner (Thomas) Richardson (Mrs. Chas. F.).
Robert Bruce Ricketts, 2nd.
William Reynolds Ricketts.
*Ferdinand Vandevere Rockafellow.
Helen Ross.
Mary Ross.
Roselys Ryman.
*Theodore F. Ryman.
*William Penn Ryman.
*Charlotte M. Ryman (Mrs. W. P.).
Caroline J. (Sharpe) Sanders (Mrs. Marion).
*Joseph John Schooley.
*Elizabeth M. Sharpe.
Mary A. Sharpe.
*Richard Sharpe, Sr.
Richard Sharpe.
Richard Sharpe, Jr.
*Sallie Sharpe.
*Sallie (Patterson) Sharpe (Mrs. Richard).
*Arthur Yeager Shepherd.
*Cornelia W. (Scranton) Shoemaker (Mrs. Levi I.).
*Charles Jones Shoemaker.
*George Shoemaker.
Esther (Stearns) Shoemaker (Mrs. Harold M.).
Irving Stearns Shoemaker.
Jane Augusta Shoemaker.
*Lazarus Denison Shoemaker.
*Levi Ives Shoemaker, M. D.
Albert D. Shonk.
*J. Bennett Smith.
Eleanor Parrish Snyder.
Katharine Conyngham Snyder.
A. J. Sordoni.
*L. Denison Stearns.
*Addison Alexander Sterling.
Harry Franklin Stern.
*Forrest Garrison Stevens.
Rosa (Sharpe) Stevens (Mrs. Yale).
Sarah Covell (Maffet) Stevens (Mrs. C. J.).
Walter S. Stewart, M. D.

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*Deceased.

*Thomas Kirkbride Sturdevant.
*James Sutton.
*John Henry Swoyer.
*Ellen E. (Miner) Thomas (Mrs. Jesse).
Louise Miner Thomas.
*Percy Rutter Thomas.
*Sallie Brinton Thomas.
*William Tompkins.
C. Rosa Troxell.
*Ephraim Troxwell.
Martha (Sharpe) Tucker (Mrs. Henry St. George).
John Augustus Turner.
*Samuel Gonsalus Turner.
Louis Hollenback Twyefforth.
*Stephen Buckingham Vaughn.
*Esther T. (French) Wadhams (Mrs. Elijah C.).
*Frances (Lynde) Wadhams (Mrs. Calvin).
Raymond Lynde Wadhams,M. D.
*David Jewett Waller.
Louis A. Watres.
Frederick J. Weckesser.
Stella L. (Hollenback) Welles (Mrs. Edward).
*Henry Hunter Welles.
Frank J. Wilder.
Anthony Lawrence Williams.
George Woodward, M. D.
*Christopher Wren.
*Emily L. (Cist) Wright (Mrs. Harrison).
George Riddle Wright.
Harrison Wright, 3d.
*Jacob Ridgway Wright.
John B. Yeager.
Margaret (Myers) Yeager (Mrs. John B.).
*Elias Baylits Yordy.

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*Deceased.

EXTRACT FROM BY-LAWS.

Perpetual Membership.

Any individual gift of $10,000.00 shall make the donor a Patron of the Society, or any one whom he may wish to name either as a living or as a memorial Patron.

Any individual gift of $5,000.00 shall entitle the donor to an Endowment membership personally, or any one whom he may wish to name, either as a living or as a memorial endowment member.

Any person contributing to the Society at any one time a sum not less than $1,000.00 shall be placed on the Perpetual membership list as a Benefactor either personally, or any one he may name as a living or a memorial Benefactor.

The payment of $100.00 at any one time by a member not in arrears shall constitute him or any one he may name a Life Member.

The perpetual membership lists shall be published in each volume of the "Proceedings and Collections" of the Society.

All moneys received on account of perpetual memberships shall be securely invested by the Trustees in the name of the Society and shall form a fund either as part of the general endowment, or as a special fund, to be designated by the member, the interest only of which shall be available for the uses of the Society.

The perpetual member is entitled to all the publications and privileges of the Society without further payment of dues. This membership establishes a permanent memorial, which never expiring, always bears interest for the benefit of the Society. It is therefore a *living* membership perpetually.

ANNUAL MEMBERS.

(See page LXIV.)

SUPPORTING.

Gilbert S. McClintock.
Harry B. Schooley.

SUSTAINING.

Charles H. Biddle.
Percy A. Brown.
Malcolm Burnside.
C. E. Clift.
Donald O. Coughlin.
George R. McLean.
William S. McLean, Jr.
Frank F. Matheson.
George Nicholson.
F. E. Parkhurst.
Julius Long Stern.
†John Augustus Turner.

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†Also Life Member.

REGULAR.

Edwin W. Abbott.
*Eleanor (Thomas) Ahlborn (Mrs. Maurice).
John Winfield Aitken.
Frances S. P. Alexander (Mrs. Murray).
Charles E. Ash.
Elizabeth G. Atherton.
Thomas Henry Atherton.
Charles M. Austin.
Clare (Hillman) Ayars (Mrs. Shepherd).
Elsie L. Baker.
A. J. Barber.
Theodore S. Barber.
Amy (Sturdevant) Barber (Mrs. Theodore S.).
Wm. T. Barnes.
Stanley Barney.
André A. Beaumont.
J. J. Becker.
Paul Bedford.
Ellen (Nelson) Bennett (Mrs. George).
George Slocum Bennett.
Z. Platt Bennett.
Justin Bergman.
Elma C. Bishop.
Helen L. (Miner) Bixby (Mrs. Edward W.).
John Hughes Blackman.
C. C. Bowman.
Sarah Porter (Smith) Boylston (Mrs. Samuel S.).
William Henry Bradbury.
William Brewster.
Allan Colby Brooks, M. D.
Frances E. Brooks.
Mary G. Brundage.
E. U. Buckman, M. D.
Douglas Bunting.
Herman Burgin, M. D.
Bernard F. Burgunder.
Mildred (Sacks) Burgunder (Mrs. Bernard F.).
Betsy (Denison) Bush (Mrs. Joseph H.).
Anthony C. Campbell.
B. Harold Carpenter.
Hon. E. N. Carpenter.
Walter S. Carpenter, Sr.
Henry James Carr.
Thomas Cassedy.
William H. Castle.
Harry E. Chase.
Samuel Cogswell Chase.
John M. Cobb.
*George F. Coddington.
Ben Cohen.
Joel Cohen.
Jessie (Guthrie) Conyngham (Mrs. W. H.).
William Cary Cooke.
Bolton G. Coon.
J. S. Coons.
Martha (Hoyt) Corss (Mrs. Frederic).
Hon. Clarence Coughlin.
*Harriet (Stark) Coward (Mrs. Thos. R.).
Edith L. Crane (Mrs. W. B.).
W. B. Crane.
Martha L. Crary.
Sara Wood Crary.
Mae L. (Eaton) Crispin (Mrs. Clarence G.).
Charles W. Dana.
Edmund L. Dana.

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*Deceased.

Franck G. Darte.
Fuller L. Davenport, D. D. S.
A. D. Dean.
H. D. Deemer.
Harriet Frances DeWitt (Mrs. L. W.).
George T. Dickover.
Oscar H. Dilley.
Victor Lee Dodson.
Anne Dorrance.
*Ruth Woodhull (Strong) Dorrance (Mrs. Benjamin).
Frances Dorrance.
John H. Doughty.
Muriel (Weston) Doughty (Mrs. J. H.).
Francis Douglas.
Hortense (Beaumont) Elliott (Mrs. C. P.).
Gwillym Edwards.
Fred. M. Eshelman.
Bruce M. Espy.
R. B. Espy.
Clark Wright Evans.
Marion Annette Evans.
Tallie Evans.
George L. Fenner.
Evelyn (Campbell) Ferenbach (Mrs. Carl).
Harriet Storer Fisk.
Joseph E. Fleitz.
Reuben Jay Flick.
Charles S. Forve.
Oscar Curtiss Foster.
F. S. Fowler.
Florence Louise (Butts) Fowler (Mrs. George).
Louis Frank.
Emma (Merril) Frantz (Mrs. G. L. C.).
W. H. Fregans.
Esther Wadhams French.
Harry L. French.
Harriet May Fuller.
Hon. Henry A. Fuller.
A. S. Galland.
Minnie (Strauss) Galland (Mrs. George S.).
John H. Garrahan.
Rev. Edmund Jayne Gates.
James Gibbon.
Isabel M. Gilchrist.
Charles H. Gillam.
Charles K. Gloman.
Maude (Whiteman) Goff (Mrs. William S.).
J. E. Griffin.
Malcolm C. Guthrie, M. D.
John C. Haddock.
Dorothy (Matlack) Haddock (Mrs. J. C.).
Jennie (Sharte) Haddock (Mrs. John C., Sr.).
Anna C. Halsey.
Margaret (Colton) Hand (Mrs. Bayard).
Kathleen Hand.
William G. Harding.
Ellen (Brisbane) Harding (Mrs. William G.).
James P. Harris.
Marion (Burgess) Harvey (Mrs. Laning).
Mary Harvey.
Louise B. (Roe) Healy (Mrs. L. W.).
George P. Heffernan.
Thomas F. Heffernan.
Louise E. Heffernan (Mrs. T. F.).
Hon. E. Foster Heller.
C. F. Hess.
Samuel H. Hicks.
Lord Butler Hillard.
Oliver C. Hillard.
Tuthill R. Hillard.
Charles W. Honeywell.
Frank P. Hopper.
John T. Howell, M. D.
Maud Buckingham Hoyt.
Charles F. Huber.
Hannah (Crouse) Hughes (Mrs. R. M.).
John M. Humphrey.
Anna M. Hunt.
Charles P. Hunt.
Grace (Lea) Hunt (Mrs. Charles P.).
Lydia Atherton (Stites) Hunt (Mrs. Irving O.).
Donald F. Innes.
E. R. James.
John E. Jenkins.
John K. Jenkins.
M. Clark Johnson, M. D.
Hon. Benjamin R. Jones.
Carleton C. Jones
Mabel (Haddock) Jones (Mrs. Carleton C.).
Carleton Haddock Jones.
Edmund E. Jones.
Katharine Carleton Jones.
Harry E. Jordan.
Ernestine Martin Kaehlin.
Ella Kintz.
Willard Kintz.

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*Deceased.

Allan P. Kirby.
John Knapp.
Joseph James Kocyan, M. D.
Frederick V. Kraft, Jr.
Rev. Ferdinand von Krug.
David H. Lake, M. D.
Elmer H. Lawall.
Charles Wilber Laycock.
George W. Leach, Jr.
Ida C. (Miller) Leavenworth (Mrs. Woodward).
Charles W. Lee.
Henry Lees.
Ida Vie Lendrum.
Virginia Helen Lendrum.
Charles L. Levy.
Eva (Goldsmith) Levy (Mrs. Felix).
Asa E. Lewis.
W. E. Lewis.
Ross H. Lloyd.
Cosmar P. Long.
Florence (Alsbacher) Long (Mrs. Cosmar P.).
Simon Long.
Eva (Stewart) Loomis (Mrs. W. D.).
Michael H. McAniff.
Flora (Kintz) McCabe (Mrs. Wesley P.).
Hetty C. McClelland.
Frank T. McCormick.
Neal J. McHugh.
William S. McLean.
Frances Leigh (Ricketts) McLean (Mrs. William S., Jr.).
Martha Adelia Maffet.
Frances G. Markham.
G. Guthrie Marvin.
Granville T. Matlack, M. D.
Elmer L. Meyers, M. D.
Sara Miles.
Helen (Reynolds) Miller (Mrs. Burr Churchill).
Clara (Gardner) Miller (Mrs. F. S.).
Harry C. Miller.
Grace (Shoemaker) Miner (Mrs. Chas. H.).
Robert C. Miner.
M. E. Moore.
Benjamin F. Morgan.
Charles E. Morgan.
Mulford Morris.
W. D. Morris, Jr.
E. B. Mulligan.
James Mulligan.
Samuel T. Nicholson.
Esther S. Norris, Jr.
Robert V. A. Norris.
Louis H. O'Connell.
Frank Pardee.
Israel P. Pardee.
E. W. Parker.
F. E. Parkhurst, Jr.
Zora Gould (Calhoun) Parks (Mrs. A. L.).
Archie Llewellyn Parrish.
James H. Paul.
Bruce Payne.
William H. Peck.
William J. Peck.
Rev. Joseph R. Pennell.
M. Peruzzi.
E. R. Pettebone.
J. S. Pettebone.
Stephen C. Pettebone.
Charles Pfifferling.
*Harry W. Pierce.
Charles F. Pokorney.
Myra Poland.
Marion (Weckesser) Pool (Mrs. J. Henry).
Samuel Potts.
Theodore Carpenter Potts.
Robert A. Quinn.
Ralph H. Raudenbush.
J. A. Redington.
Herbert Reynolds.
William Nicholas Reynolds, Jr.
A. N. Rippard.
Melvin G. Robbins.
Victor S. Robinson.
K. J. Ross.
Edward M. Rosser.
William J. Ruff.
Harold N. Rust.
Edward F. Ryman.
Louise (Lynch) Ryman (Mrs. Leslie S.).
H. S. Sage.
Eugene R. Schooley.
Winifred (Griffith) Schooley (Mrs. Harry B.).
Elizabeth (Woodward) Scott (Mrs. E. G.).
Curzon Seymour.
Edward S. Shepherd.
Harry C. Shepherd.
William C. Shepherd.
A. C. Shoemaker, M. D.
Harold M. Shoemaker.
William H. Shonk.

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*Deceased.

Edwin Shortz, Jr.
Frank P. Slattery.
Archie DeWitt Smith.
Ernest Gray Smith.
Marjorie (Harvey) Smith (Mrs. Ernest G.).
H. S. Smith.
Ralph Alexander Smith.
Robert C. Smith.
Jessie (Stocker) Smith (Mrs. Robert C.).
Erskine L. Solomon.
Rev. L. L. Sprague, D. D.
Cornelia M. Stark.
Frederic W. Stark.
Claire (Warbrick) Stark (Mrs. Frederic W.).
S. Judson Stark.
Arline (Payne) Sterling (Mrs. Paul).
Paul Sterling.
W. Carl Sterling.
Louise M. Stoeckel, M. D.
Frank Sturdevant Stone.
Bertha Strauss.
Emilie T. Strauss.
Hon. S. J. Strauss.
Guy Sturdevant.
Lucy H. Sturdevant.
W. C. Sutherland.
Isaac M. Thomas.
Gertrude (Mann) Thompson (Mrs. Jerome N.).
Edward Sweetser Tillotson.
Elizabeth W. (Ayres) Tompkins (Mrs. W. S.).
Nat Trembath.
Mary L. Trescott.
Ellen (Page) Trumbower (Mrs. C. K.).
Richard Turner.
Anna Elizabeth Turrell.
George Henry Turrell.
Margaret (Clark) Turrell (Mrs. Geo. H.).
Mernie Ione Turrell.
John H. Uhl.
Sarah (James) Uhl (Mrs. Russell).
Isaac S. Van Scoy.
Lydia F. Wadhams.
Ralph H. Wadhams.
Spenser Wagner.
Charles B. Waller.
Bessie (Roberts) Warner (Mrs. Sidney).
Samuel D. Warriner.
W. O. Washburn.
May (Strong) Watson (Mrs. W. L.).
Henry Hunter Welles, Jr.
Theodore L. Welles.
Ambrose West.
Mrs. Caroline A. Wharton.
Hayden Williams.
John D. Williams.
Thomas H. Williams.
O. R. Wolfe.
*Hon. John Butler Woodward.
Cecile (Allard) Worl (Mrs. Oakes).
Frederic Edgar Zerbey.

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*Deceased.

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Any one paying the sum of $25.00 annually shall be listed as a Sustaining member. Any one paying the sum of $50.00 annually shall be listed as a Supporting member.

Sustaining and Supporting members who continue their annual payments throughout life shall be entered on a permanent list of such membership.

SUMMARY OF MEMBERSHIP.

December 31, 1925.

Perpetual			287
	Founders	4	
	Patrons	2	
	Endowment	3	
	Benefactors	42	
	Life	236	
		287	
Annual			335
	Supporting	2	
	Sustaining	12	
	Regular	321	
		335	
			622

THE ORIGIN AND CONSTITUTION OF COAL.*

BY REINHARDT THIESSEN†

READ BEFORE THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,
WILKES-BARRÉ, PA., MARCH 14, 1924.

INTRODUCTION.

Of all our natural resources, coal has had the greatest influence on economic conditions, on the advancement of industry, and on the general welfare of the nation; it has been the chief factor in the industrial revolution, yet it has received the least study and attention. What we know about the chemistry of coal is almost negligible. It is true that chemists have considerable knowledge of the products of distillation, but probably none of those substances are to be found in coal as such.

Coal has been called "petrified sunlight", because the daylight of millions of years ago is wrapped up in the black gloomy masses brought to daylight by miners. According to calculations of geologists, millions of years ago (eons before man appeared; epochs before the giant dinosaurs wallowed in the mud of the western plains; during a period called the Carboniferous), conditions were favorable for the development of numerous and extensive swamps. These swamps were the sources of the coal beds of to-day. Through study and comparisons we know now that these beds were formed in swamps in a manner similar to the formation of the peat beds of to-day. From a study of the peat beds we may learn very much of the origin, composition, and general nature of coal.

THE PEAT BOG OF TO-DAY.

Peat is formed in rather shallow, undrained basins or depressions, or plains, under conditions that were favorable to luxuriant plant growth but unfavorable to complete decay, with the result that semi-decayed plants accumulated. Such accumulation takes place in swamps, bogs, or sloughs. The most common type is the wooded swamp, usually designated according to the predominant trees growing therein. Many of such swamps are found in Minnesota, Wisconsin (Plate I, A and B), and Michigan, and the Dismal Swamp of Virginia and North Carolina is an example of an unusually large one. These swamps in many respects are much like the coal swamps of the Carboniferous period. The original vegetation of the wooded swamp mentioned consisted of a dense luxuriant growth of moisture-loving trees, such as the white cedar, tamarack, spruce, balsam, bald cypress, black ash, and a few others, only a few species growing together in a given swamp. Shrubbery is absent, a thick carpet of mosses and lichens is growing on the hummocks and prostrate trunks underneath the trees, but very few herbs of any kind are found. Most of the tree trunks are covered, particularly on the north side, to a considerable distance upward with a coat of mosses and lichens.

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†Research chemist, Pittsburgh Experiment Station.

A swamp of this kind in its native condition is awe-inspiring, and puts one in a peculiar frame of mind. The sunshine trickles through the branches but sparingly; a twilight condition prevails even at high noon; almost semi-darkness prevails on cloudy days. A breeze is only manifested by a sigh in the tree tops, a gale by a howl and a moan and the cracking of tree-trunks and branches rubbing together. On calm days the silence is distressing. The beauty of the surroundings, no matter what time of the year, is one of grandeur. In some places most of the trees stand straight as a plumb-line (plate I A), in others the wildest entanglement of broken down or reclining trees with their branches exists (Plate I B).

The ground under these conditions is very wet, submerged for the most part in wet seasons, and thoroughly soaked with water even during the driest periods (Plate II). Walking is difficult, and advance can generally only be made by jumping from hummock to hummock. A jump short of the mark

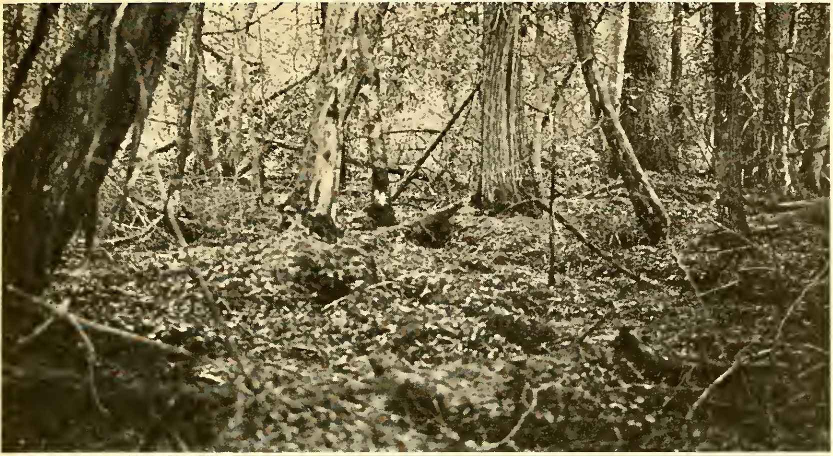


Plate I. A.—In a peat bog of Wisconsin during a dry season. Note the partly buried tree trunks. During most of the year all but the hummocks is under water. The trees are white cedars with a few tamarack and black ash. A normal appearance.

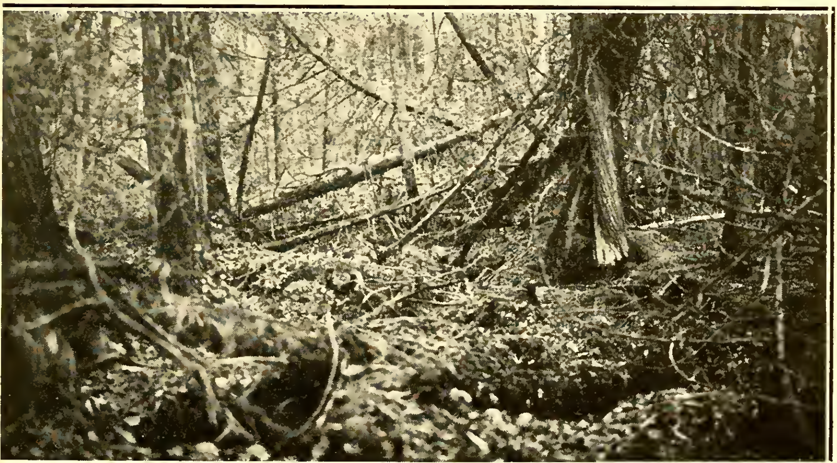


Plate I. B.—In a peat bog of Wisconsin, during a dry season, in which the fallen and reclining and low branches make passage almost impossible. The ground consists mostly of tree trunks covered up with débris.

will find the visitor deep in a pool of water or mire. The swamp is further impeded by a wild entanglement of reclining and fallen trees and their branches (Plate I B). As already indicated, every spot not under water is covered with a mat of mosses and lichens. A litter of small twigs, leaves, and general débris is dominant everywhere. Particularly noticeable are the leaves or needles of the conifers that usually compose the flora (Plate II B).

The surface layer, or sub-stratum itself, consists of the components named above in all conceivable stages of decay, fragmentation, and maceration, penetrated with a thick network of the roots and rootlets of the trees growing in the swamp. These roots lie relatively close to the surface in a horizontal position. They penetrate but a few inches.

The real peat lies beneath the surface layer. Its depth varies from a few feet to 30 feet or more; 10 feet is a common depth. This mass consists of the components already enumerated, but everything is in semi-rotten condition. The tree trunks, limbs, branches and parts of them are found in abundance; but they can easily be cut with a spade, and molded like clay. The spaces between the logs, branches, twigs, and roots, and fragments of these are filled in with a fine black mud. When this mud is examined with the microscope it is shown to consist not of earthy matter but of the degradation matter of anything and everything once living in the bog—namely, of wood, bark, leaves, mosses, lichens, spores, pollen grains, and resinous matters.

The mass as a whole behaves and appears more like a mud than anything else, and contains from 80 to 90 per cent. of water. When it is dried, which is accomplished with some difficulty, it is hard and brittle, and forms a good fuel.

COMPOSITION OF PLANTS.

Since coal was formed from plants it is quite important to consider their chemical composition.

Plate II. A.—In a peat bog of Wisconsin at close range. A large part of the ground is under water.

Plate II. B.—In a Wisconsin peat bog at close range, showing the nature of the litter on the ground. The foreground is under water.

Green plants manufacture their own foods from water, drawn up by the roots; and carbon dioxide, taken in by the leaves, by means of the sunlight through the aid of chlorophyll, the green coloring matter of the leaves. This process is called photosynthesis. The first product is formaldehyde. This is condensed to glucose, from which in turn cane-sugar, starches, and cellulose are formed. From the sugars and starches, with the addition in some cases of nitrogen and sulphur, all other plant substances are then formed by the plant, either during a building up or assimilation process or a tearing down or disassimilation process. Green plants are therefore, to speak figuratively, absorbers of sunlight, or better, of solar energy. For that reason particularly coal has been called "petrified sunlight", and "born of the sun".

The products thus formed by plants, and of which they are composed, are well known, and can be definitely outlined as follows:

I. Carbohydrates.
    1. Simple sugars.
    2. Cane sugar, starches.
    3. Cellulose.
        Lignocellulose.
        Pectin.
        Gum.

II. Glucosides.

III. Tannins.

IV. Pigments.
    1. Chlorophylis—green coloring matter of leaves.
    2. Carotoids—coloring matter of leaves, flowers, and stems.
    3. Anthrocyans—coloring matter of flowers, leaves.

Plate III. A peat bog of the middle Carboniferous, as visualized by the Paleontologist. (From frontispiece of "Die Entstehung der Steinkohle", by H. Pontié, after a painting by W. Kranz.)

- V. Acids and their salts.
  - 1. Fats and oils.
  - 2. Lipoids.
- VI. Essential oils.
  - 1. Terpenes.
  - 2. Camphors.
- VII. Resins.
- VIII. Vegetable bases or nitrogen compounds.
  - 1. Amines.
  - 2. Alkaloids.
  - 3. Purines.
  - 4. Nucleic acids.
- IX. Proteins.
- X. Enzymes.

The total number of compounds embraced in this outline is large, but most of them are well known by the plant chemists, and all of them contribute to peat.

Plant substances may also be grouped according to their uses or rôle, such as:

Framework materials,
Living materials,
Reserve and food materials,
Protection materials, and
Waste materials.

The framework material constitutes the cell-walls and other skeletal substances of the plant. It is made up of carbohydrate substances, such as celluloses, lignonecomplex, lignocellulose, pectins, and gums. The celluloses and lignonecomplex—in other words, lignocellulose or wood—constitute by far the largest bulk of the plant as a whole.

The living substances include protoplasm and enzymes. These are the most important and also the most complex substances in existence. All life depends upon them.

Reserve or storage substances accumulate in various parts of the plant to be available for the plant itself, or by its

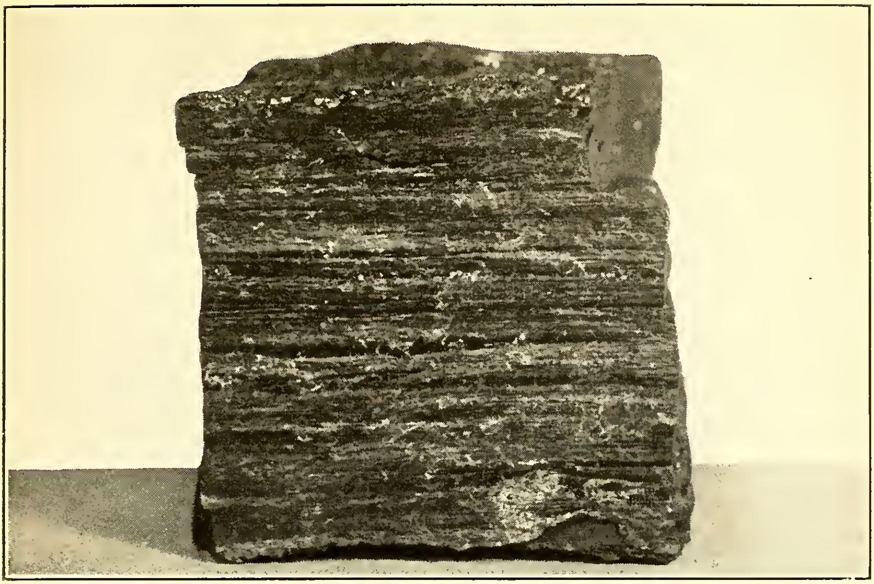


PLATE IV. A.—A lump of coal from the upper part of the Thick Freeport bed. The coal is composed largely of "dull coal", with but a few strips of bright coal or anthraxylon, represented by black bands. ½ natural size. (After Thiessen and Voorhees.)

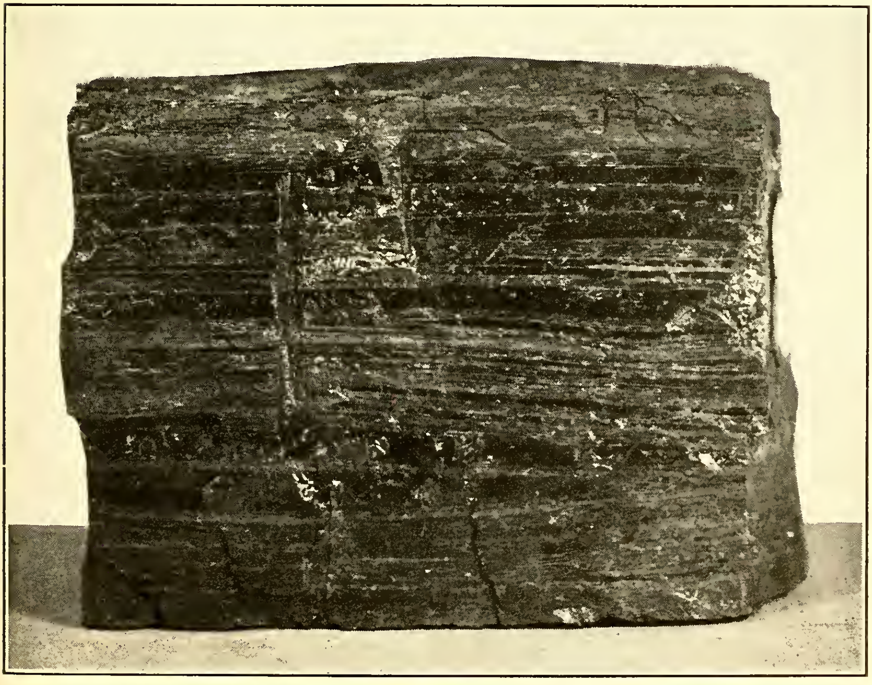


PLATE IV. B.—A lump of coal from the bottom of the Thick Freeport bed, composed largely of "bright coal" or anthraxylon. The black bands represent the anthraxylon, and the grayish bands the "dull coal". The bottom part of the black, about one inch in thickness, consists of bone coal. ½ natural size. (After Thiessen and Voorhees.)

offspring, or seed for future use. Sugars, starches, fats, oils, and proteins serve as reserve substances.

Waste substances are substances thrown off as the result of life processes and are deposited in cavities, ducts, cells, or on the epidermis, and are of no further use. To these belong the resins, terpenes, camphors, and perhaps glucosides, and alkaloids.

Protective substances, as the name implies, serve to protect the plant from exterior forces or injuries such as weather, cold, heat, moisture and living organisms. In these are included the fats, oils, waxes, resins, and cuto-cellulose. They form coverings on leaves, stems, fruits, seeds, spores, and pollens.

HOW PLANTS CONTRIBUTE TO THE BOG.

During every growing season, plants grow new leaves, young shoots, flowers, seeds, pollens, and spores; wood and bark is added to the stems, besides, certain secretions such as gums, resins, and tannins, mostly products of disassimilation, are deposited in ducts and reservoirs throughout the plants. Every year, also, plants shed the leaves, blossoms, pollens, spores, part of the bark as a natural sequence of the life processes of the plant. Also twigs, branches, and trees are broken or torn down by the wind, ice, sleet, and snow. Trees or parts of trees die through injury, and sooner or later drop in a semi-decayed condition. Many trees, on account of the loose ground they live on, are not able to hold up, and gradually lean over more and more until eventually they lie flat on the ground, and sooner or later are buried dead or alive. Thus in the long run an equilibrium is maintained between growth and drop.

The dead material, as long as uncovered by water, undergoes a rapid decay, begun first by fungi and maintained by fungi and bacteria.

Several kinds of decay are recognized—namely, (1) complete decomposition with free access of air, in which no solid

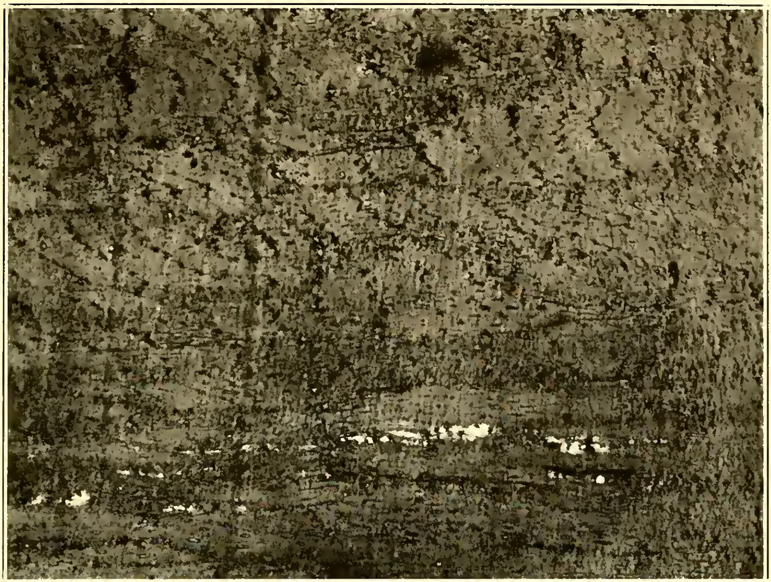


PLATE V. A.—Thin cross section of "bright coal" or anthraxylon, showing woody structure, much distorted and crushed. X200.

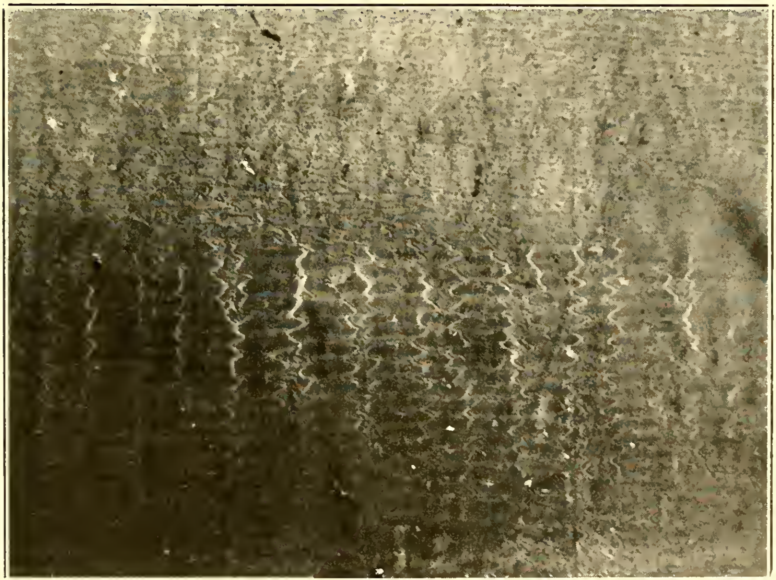


PLATE V. B.—Thin cross section "bright coal" or anthraxylon woody structure in varying states of preservation. X200.

matter remains that in any way could contribute to the formation of peat or humus. The main products are water and carbon dioxide. (2) Moldering or decay in moist conditions with somewhat checked access of air, through which earth molds and leaf molds are formed. Black earths or humus earths are the result of this type. (3) Putrefaction or decomposition in which air is excluded mainly by submersion under water. Decomposition under such conditions is very slow. And (4), peat-forming, a condition under which peat is formed. This process is a combination of all the types of decay.

Decay in the air is the initial and the most important step. Dead and partly dead trees, while yet standing, dead branches and twigs on living trees, trees broken down, branches broken down, leaves, bark, and other plant products are soon attacked by a large variety of fungi. These fungi soon transform these plant parts into a soggy mass and prepare it for the attack of bacteria. As long as the mass remains exposed to the air, decay proceeds rapidly, much of it decomposes completely, some of it remains in a semi-decayed condition. In this state much of it crumbles and much of this is transformed into a fine débris. In this condition the mass is sooner or later covered up by subsequent decaying vegetable matter, and becomes submerged below the water-level. Once in this position decay proceeds very slowly, partly on account of the exclusion of air and partly on account of the antiseptic condition of the mass caused by the decomposition products themselves. Slow changes, however, are taking place in the bog, and even at considerable distances below the surface. This is shown by the change of a more immature peat in the upper strata to more and more mature peat in the deeper strata. Also, living bacteria are found at all depths of the bogs. Also, gases, mostly methane, or marsh gas, are constantly being given off from the deposit, as every boy knows who has had the fun of

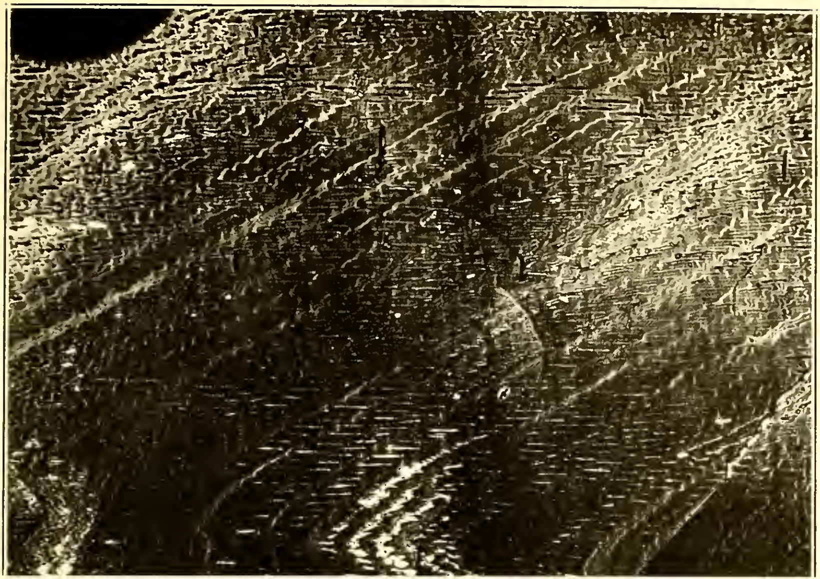


Plate VI. A.—A thin cross section of "bright coal" or anthraxylon in which the woody structure is well preserved, though slightly distorted and much compressed. X200.

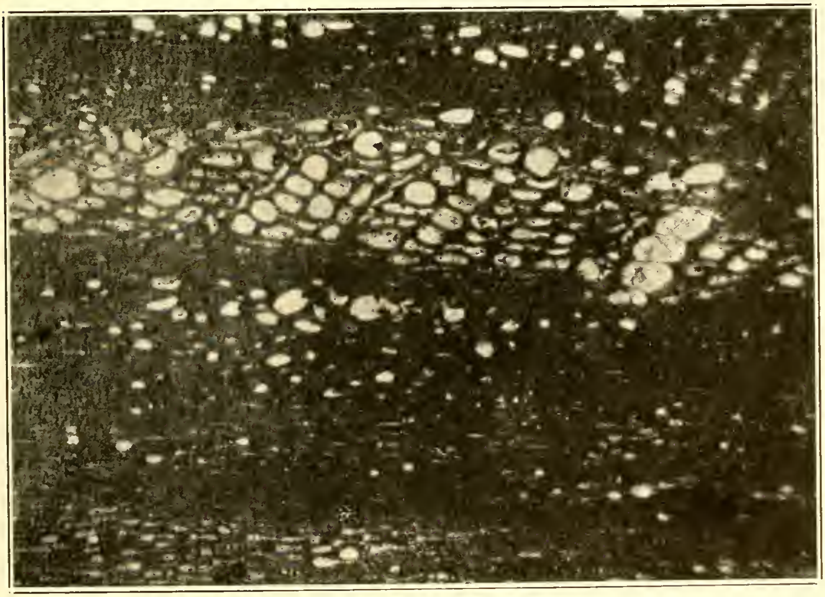


Plate VI. B.—A thin cross section of "bright coal" or anthraxylon inclosing natural resin. Woody structure in varying states of preservation. X200.

wading in water with mud, containing plant matter, at the bottom.

Not all plant substances decompose with the same ease; in fact, some do not appear to be attacked at all by putrefying agencies, while others rot very quickly. The plant components that constitute the living part of the plant, and the plant foods and reserve substances such as the sugars, starches, and gums are relatively easily decomposed, and relatively little remains of these during ordinary rotting. The cell-wall components also vary greatly in the ease with which they rot or decompose. The hemi-celluloses, hexoses and pectins, decompose more easily than the celluloses, which are quite resistant. The cuto-celluloses are the most resistant to decay. The largest part, as already intimated, is contributed by the wood of plants. In recent years a considerable study has been made of decaying wood in connection with the paper industry, and this has been of great help in our study of coal. It must be remembered that in coal we are concerned with a substance derived largely from rotten wood. Wood is composed of cellulose and a lignin complex, the two forming the lignocellulose. In rotting wood the cellulose disappears fairly rapidly, while the lignin complex or certain parts of the lignin complex remain. And it is this part that mainly contributes to peat.

Those substances which we have called the protective substances are all very resistant to agencies of decay. To them belong, as already said, cuto-cellulose, wax, fats of higher molecular weight and resins. The cuticles of many plants, the spore-exines and pollen-exines, are largely composed of such substances, and undergo but little chemical change. The waste products in general are disassimilation products, and no longer available as foods are also not putrefiable. To these belong the resins, terpenes, and alkaloids. Because these substances undergo little or no decomposition, and since those substances that form the bulk of the plant mass undergo considerable decomposition, the former substances

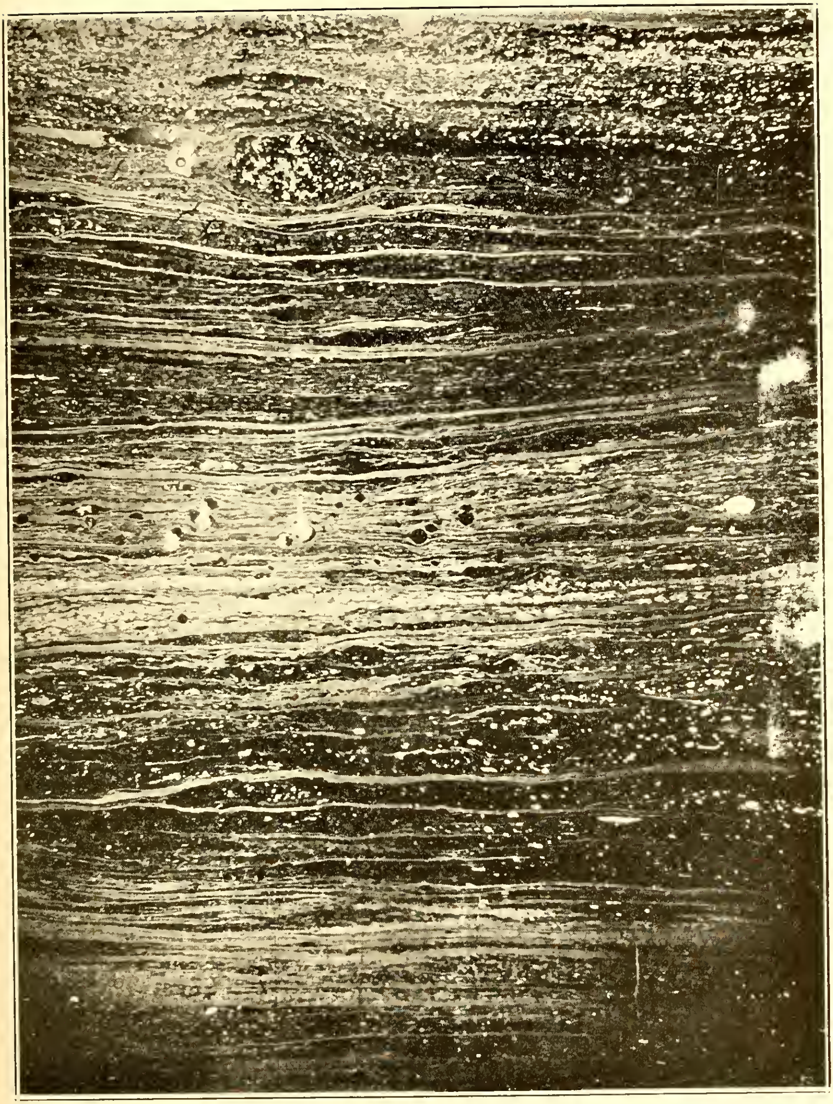


Plate VII.—A thin cross section of dull coal, Pittsburgh Bed, at a low magnification. The strips in light gray represent thin strips of "bright coal" or anthraxylon; the darker strips between these represent the attritus. X10.

remain in relatively much larger percentages than found in the plant originally. It is thus seen that a selection of the more resistant substance is going on all the time, and the more resistant the less is their loss, and that the more and more resistant substances accumulate proportionately faster than the least and the less resistant.

FORMATION OF COAL BEDS.

It has been shown how many peat beds were laid down, what material contributed to them and what became of them. It is now generally understood that coal beds were formed in a somewhat similar manner. The strongest argument for assuming this analogy is that they are alike—constituent for constituent.

PERIODS OF COAL FORMATION.

There were three periods in the earth's history with conditions favorable to the accumulation of plant material which has since been converted into lignite, brown coal, bituminous coal, or anthracite. By far the most extensive accumulations occurred towards the close of the Paleozoic era. At this time all the important coals of eastern North America, Europe, and China were laid down. The second period occurred during the Cretaceous times, in which the Rocky Mountain coals were formed. The third period occurred during the Tertiary, when the brown coals of Europe and lignite in an area chiefly west of the Rocky Mountains were formed. Some coal is found in the Triassic of eastern North America, and in small quantities in beds of other ages in various parts of the earth.

A coal bed usually rests upon a bed of fireclay. Coal beds vary in thickness from a mere film to many feet. It is common that the vertical continuity of a bed is interrupted by layers of shale or bone coal. Overlying the bed there is frequently a roof of shale, which is a consolidated mud; but sandstone roofs are not uncommon.

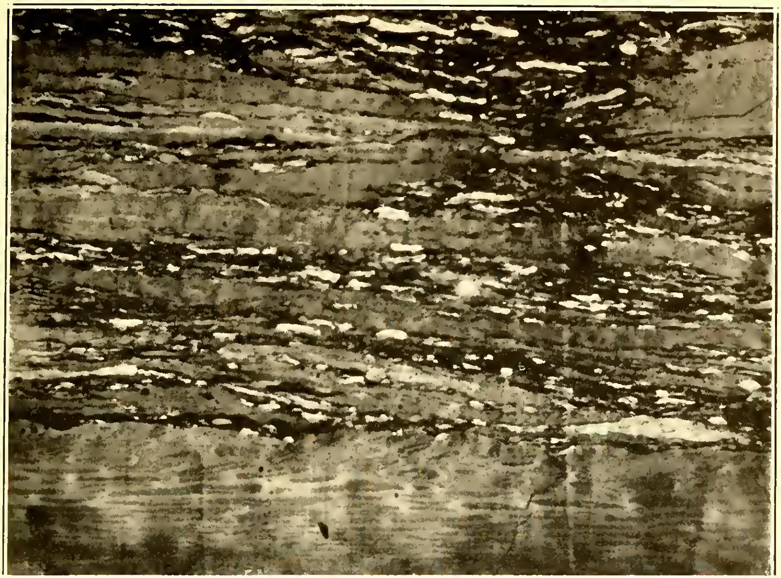


Plate VIII. A.—A thin cross section of "dull coal" at a higher magnification. The upper part consists largely of attritus and thin bands of anthraxylon; the lower part contains a thin band of anthraxylon with well preserved plant structure. X200.

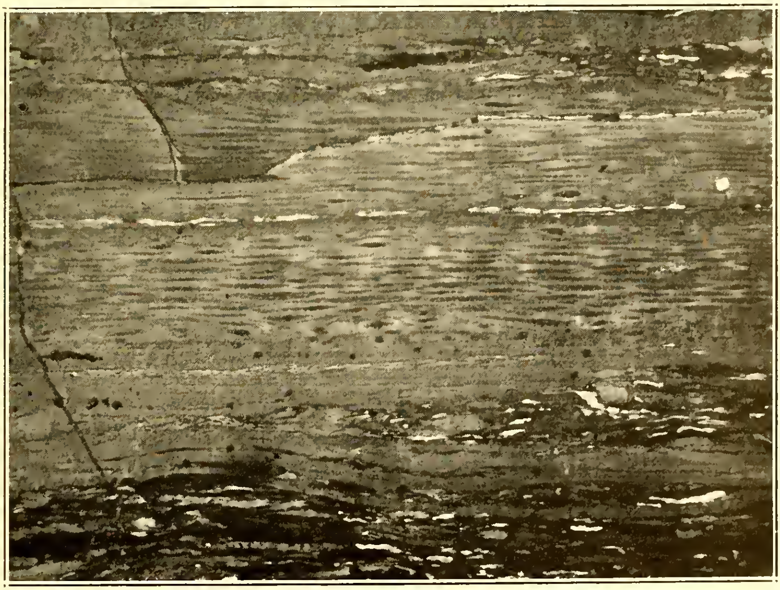


Plate VIII. B.—A thin cross section of "dull coal" with a thin band of anthraxylon with well preserved plant structure but much compressed. X200.

KINDS OF PLANTS THAT CONTRIBUTED TO COAL.

The kinds of plants that prevailed during the Carboniferous period belonged to totally different families—families now extinct—or represented only by small herbaceous plants (Plate III).

The main representative plants of the Carboniferous age were the Calamites or ancient horsetails; the Lepidodendrons or the ancient Lycopods, to-day only represented by the club-mosses or ground pines and selaginella; the Sphenophylls, now totally extinct; certain Cycadad-like Gymnosperms and Cordiatales, related to our present conifers. Ferns were not well represented, and flowering plants were probably not represented at all.

The plants that contributed to the Cretaceous and Tertiary coals were more like the plants of to-day. A large proportion of these plants appear to have been conifers, closely related to the present bald cypresses, red cedars, sequoias and others. But flowering plants, such as the oak, birch, plantain, and beech, had also appeared.

While the kinds of plants differed considerably in type and species, the chemistry of the ancient plants was probably not different from those of to-day, and their decomposition resulted in similar products.

It has been found in most cases that the ancient peat bogs were formed in a subsiding region of the earth's crust. The swamp began probably with a moist condition, then gradually became wet, and then gradually changed into an aquatic condition. While in the aquatic condition the inflowing water carried in silt and sand, and finally the bog was covered with rock-forming material which in time formed shale and sandstone. The peat mass was gradually compressed more and more, and deprived of its high water content. As a result of the compression, but in particular due to the elimination of water, and to its colloidal nature, the mass gradually hardened, as such substances invariably do when deprived

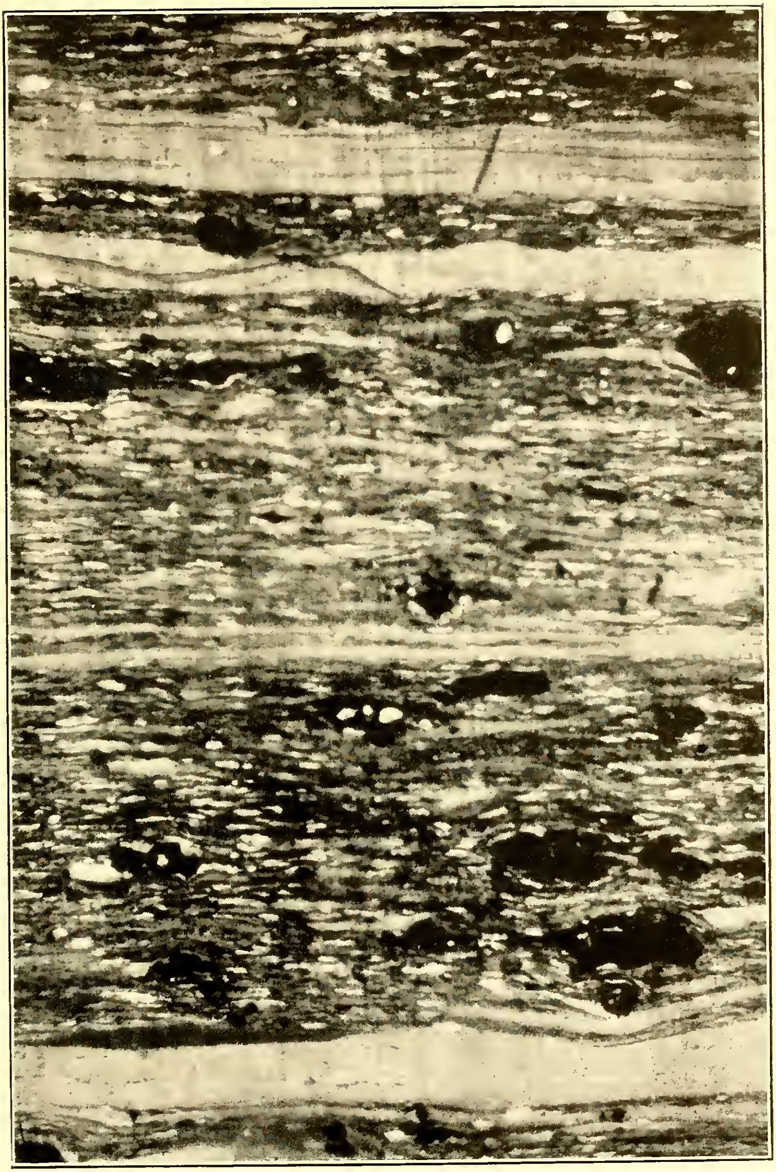


PLATE IX.—Thin cross section of dull coal, Pittsburgh bed, largely composed of attritus, with a few very thin bands of anthraxylon. The attritus is composed largely of spore matter, some highly carbonized particles, and some woody degradation matter. X200. (After Thiessen and Staud.)

of water. There was thus a gradual change from peat into lignite, from lignite into sub-bituminous coal, then into bituminous coal as time went on, and, in the case where greater earth movements prevailed, into anthracite.

COMPILATION OF THE COAL BED.

All ordinary bituminous coal on close examination is found to be highly laminated and compiled of various layers and sheets of coal differing from one another in color, texture, and mode of fracture, and varying greatly in thickness (Plate IV). In general, two kinds of layers are recognized, apparently alternating and standing in sharp contrast to one another: one is of a jet-black pitchy appearance and compact, breaking with a definite concoidal fracture; while the other is somewhat grayish in color, of a dull appearance and less compact. The former is generally designated as "bright coal", and the latter as "dull coal". The bright coal consists of lenticular masses embedded in the dull coal. The dull coal is further sublaminated into very thin laminae of bright coal embedded in a granular dull coal or attritus (Plate VII).

These characters are easily observed in any block or lump of coal; but usually a single block of coal is not large enough to reveal the lenticular structure of the thicker bright-coal strips. Of the smaller and thinner ones, however, this is well shown.

In comparing a lump of coal with a lump of peat we find the same kind of components in each; every kind of component found in the one is also found in the other. In order to discover the parallelism or similarity of the two it is necessary to cut thin sections of the coal and examine them under the microscope.

PREPARATION OF THIN SECTIONS.

A thin section of coal is made much in the same way as a thin rock section is made. A selected piece of coal, having

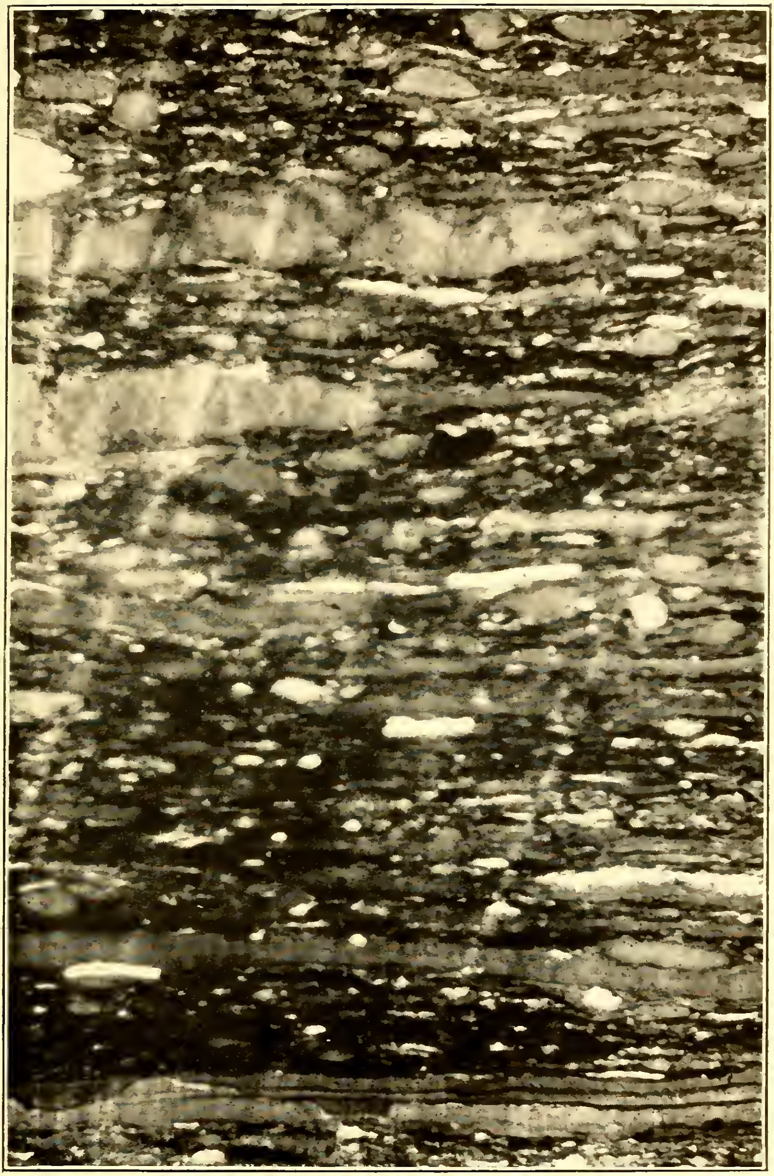


Plate X.—Thin cross section of "dull coal" Redstone bed, composed of attritus, consisting largely of woody degradation matter and some spore matter. X200. (After Thiessen and Staud.)

a face approximately ½ by ¾ inch, and ½ inch in thickness, is carefully polished on one side, either perpendicular to the bedding or parallel to it, first by coarse grinding, and next by rubbing on a very fine hone. After this is done it is glued, with a mixture of three parts of Canada balsam and two parts of marine glue brought to a correct consistency by previous heating, to an object slide. When this is done the preparation is ground down on an ordinary lapidary's wheel to the thickness of about 1/50-inch. It is then further ground down by rubbing on a fine hone until transparent. Such a section reveals a marvelous array of beautiful colors, from yellow to deep red. The coal in such a section has not been changed in the least, and reveals all the constituents in the natural condition.

BRIGHT COAL.

In examining a layer or strip of bright coal, no matter how thick or from what part of the coal, or from what coal bed, it reveals a structure derived from that of wood (Plates V and VI). No sheet or layer of bright coal of any thickness has yet been found that does not reveal this structure. Often we find the woody structure so well preserved that it is possible to recognize the kind of plant from which it came. Often also such pieces of woody coal still include the natural resins of the plant (Plate VI B). It must be observed, however, that the tissues thus revealed in the bright coal have been much compressed and squeezed together. Sometimes the mass has become so much pressed together that it has become quite homogeneous, and the structure is then fairly difficult to reveal. We must conclude, therefore, that these layers or sheets of bright coal are derived from larger pieces of wood. These components being derived from wood, but being no longer wood, but coal, we shall call them "anthraxylon", meaning coal from wood. We have then in the anthraxylon strips or masses, components parallel to the larger woody pieces of peat.

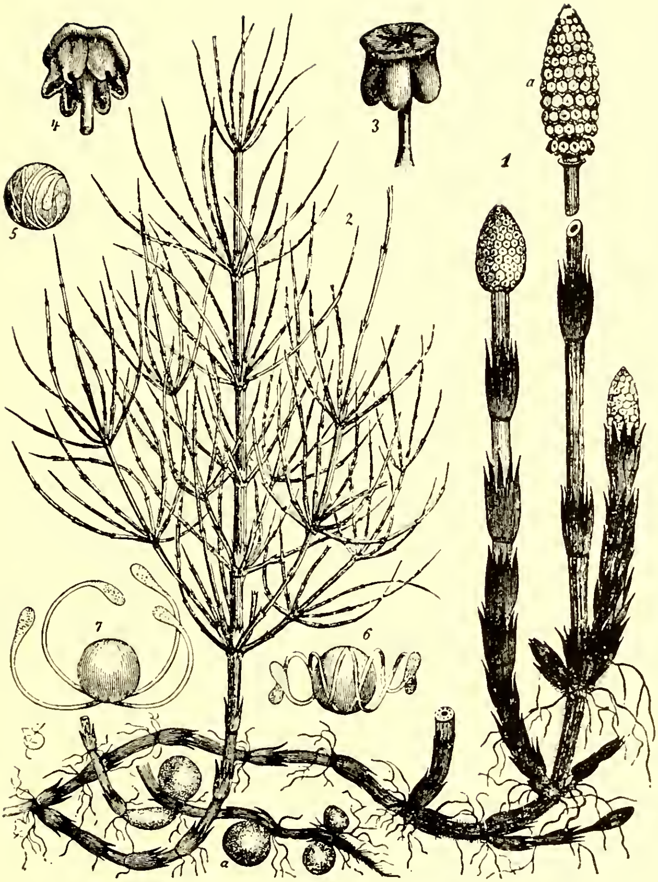


PLATE XI.—Equisetum arvense or common horsetail. (1) three fertile shoots, showing the cycles of scale leaves at the joints and the terminal cones with numerous sporophylls, that of (a) being mature; (2) a sterile shoot, showing branching; (3) a single sporophyll bearing sporangia; (4) view of sporophyll from beneath, showing opened sporangia; (5, 6, 7) spores with elators. (After Coulter and Wossidlo.)

DULL COAL.

Turning now to the dull coal, and in examining a section of it at a lower magnification, say 10 diameters (Plate VII), it is shown that it is composed of thin strips of bright coal embedded in a granular mass, the "attritus". In examining these thinner strips of bright coal at a higher magnification it is again found that they also show woody structures (Plate VIII). As all of them show this structure more or less well preserved, and as they are of the same order as in the larger strips, we come to the conclusion that they represent smaller fragments of wood turned into coal, and hence are smaller strips of anthraxylon. These again represent the smaller splinters or fragments of woody matter in peat.

The bottom coal of a coal bed is usually composed of a relatively large amount of anthraxylon, and a small amount of attritus (Plate IV B). But in going from the bottom to the top of the bed the amount of anthraxylon, in general, decreases, while the relative amount of attritus increases, so that the top coal usually consists entirely or almost entirely of dull coal (Plate IV A), while the bottom coal consists largely of bright coal (Plate IV B). In some cases the anthraxylon or bright coal disappears entirely at the top, and in that case the coal is simply called a "cannel coal". (Plate XXI).

THE ATTRITUS.

The granular matter or attritus is also called the groundmass, as every other component is surrounded by it or embedded in it. It is a complex substance, being composed of a considerable number of constituents derived from various parts and organs of plants. (Plates VII, IX, X, XV, and XVI).

The attritus is the rubbish pile or refuse pile left by the decaying plants. It must be expected, therefore, to find in it, besides the woody and cellulose degradation matter or humic matters, other substances quite resistant to decay.

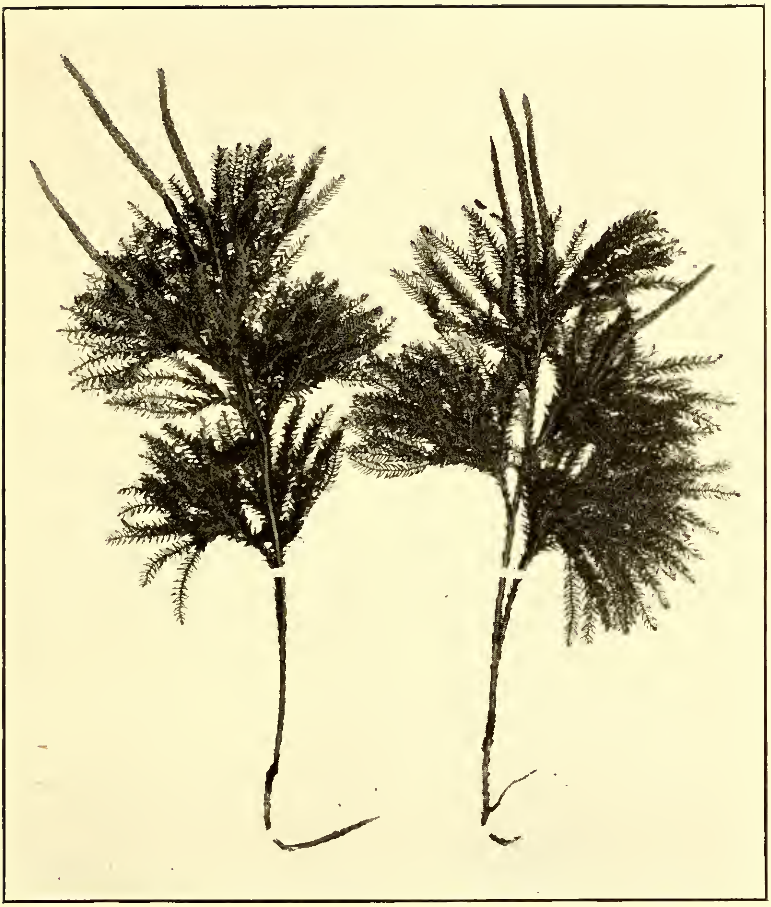


Plate XII.—Two herbarium specimens of Lycopodium obsurum, a common ground pine or club moss with cones. ½ natural size. (After Thiessen and Staud.)

To these substances belong the outer coverings of spores and pollen grains, cuticles, waxy coverings of leaves, stems and fruits, resinous matter, certain oils or fats, and waxes contained in the tissues. Besides these there is a long list of substances in plants that more or less resist putrefaction, such as tannins, alkaloids, terpenes, camphors, and others. Many of these, however, are so scattered throughout the plant in such small quantities that they ordinarily escape observation under the microscope. But when the plant decayed, much of this remained behind with the rubbish, and must still be there with the rest of the remains. These are some of the little things that are so easily overlooked, and when coal is heated we wonder where all of the products given off come from.

Some of the constituents of the attritus like the humic matter, spores, cuticles, and resins form a fairly important rôle in the general character of the coal and require further mention.

HUMIC MATTER.

The humic matter may (Plate X) be derived from the woody and cellulosic tissue, from bark, cork, cortex, leaves, and other plant substances. Much of it has lost its identity, but much of it has retained some of the original cell structure.

SPORE-EXINES.

The spore-exines are the most obvious constituent in coal, and are easily seen on account of their clear yellow color and transparency. They are present in every coal, more in some than in others (Plates XIV, XV, XVI, and others). What are spore-exines?

Spore-exines are merely the shells, or outer walls, or coverings of spores. The easiest way to illustrate what spores are is to refer to the ordinary ferns, so often grown in pots as house plants. On the under surface of the leaves of the ferns, rows of dots are visible at most any time of

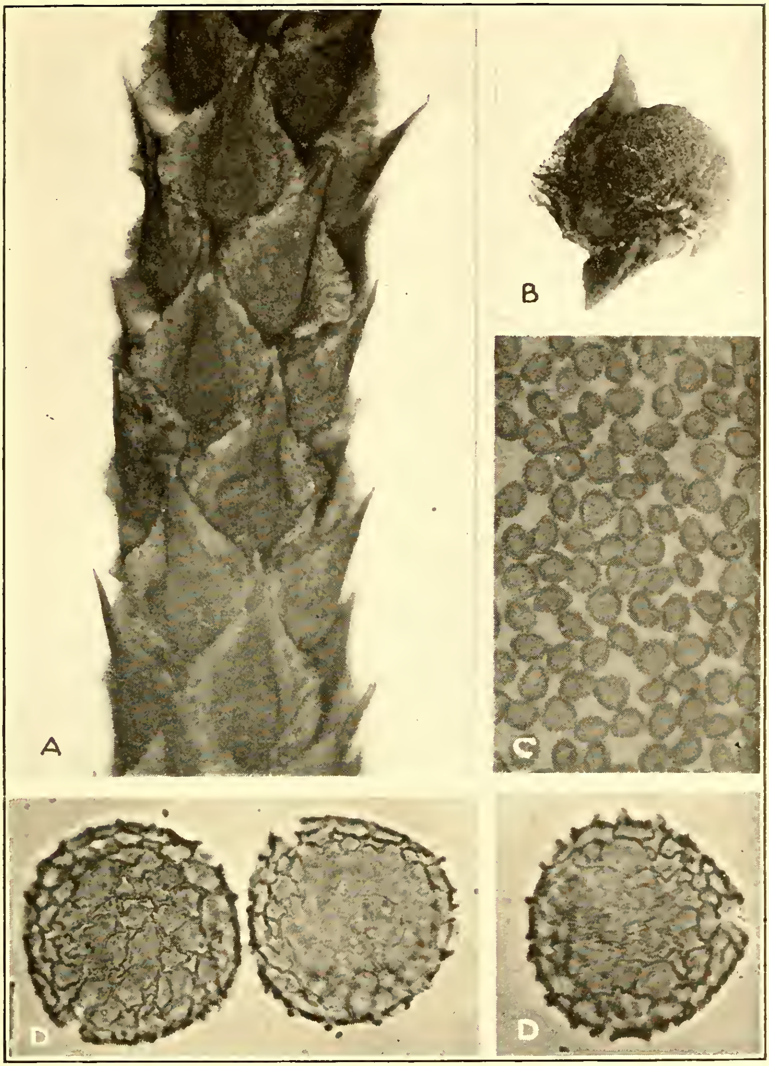


Plate XIII. A—Part of one of the cones of plant shown in Plate XII. X20.

Plate XIII. B.—One of the sporophylls of the same removed, showing globular sporangium underneath, filled with microspores. X20.

Plate XIII. C.—Spores from the same X200.

Plate XIII. D.—Spores of the same at a high magnification showing sculpturing of the spore exine. X1000. (After Thiessen and Staud.)

the year. When the fern is handled at certain periods a fine dust is seen to come off the leaves having these spots. This dust consists of the spores of the fern. Unfortunately, ferns of this type did not contribute materially to the coal flora of the Carboniferous Age, and therefore furnish a poor example as to the kind of plants contributing to coals.

The common horsetail or Equisetum (Plate XI), and the club moss or Lycopodium (Plate XII) of both of which there are a number of species, and which are direct descendants of plants that contributed largely, if not the most, to the coal substances, are much better examples to illustrate the origin of spores in coals as well as the main or woody and other substances in coal.

The present common horsetails are the lingering remnants of the Calamites (Plate III), a once abundant vegetation which largely contributed to coal. Horsetails grow in moist or in dry places, sometimes in great abundance. Early in the Spring a slender stalk shoots up from a slender rhizome, bearing on the end a club-shaped shoot (1, Plate XI). This is the spore-bearing part of the commonest of the horsetails, equisetum arvense. Soon a large amount of yellow powder may be seen to come off this cone when lightly touched. This yellow dust again consists of the spores (5, 6, 7, Plate XI). In a short time these spores are all shed and the stalk again disappears, shortly to be followed by other shoots which develop into small tree-like or bushy plants (2, plate XI). These are the plants of the horsetail as ordinarily known, and do the chlorophyl work of the plants.

The Lycopodia (Plate XII), popularly known by the name of "club mosses", or ground pines, and whose ancestors, the Lepidodendrons, also contributed largely to the coals, are good examples to illustrate what is meant by microspores and megaspores.

Club mosses, or ground pines (Plate XII) are small tree-like or bushy plants, hardly more than a foot high, although

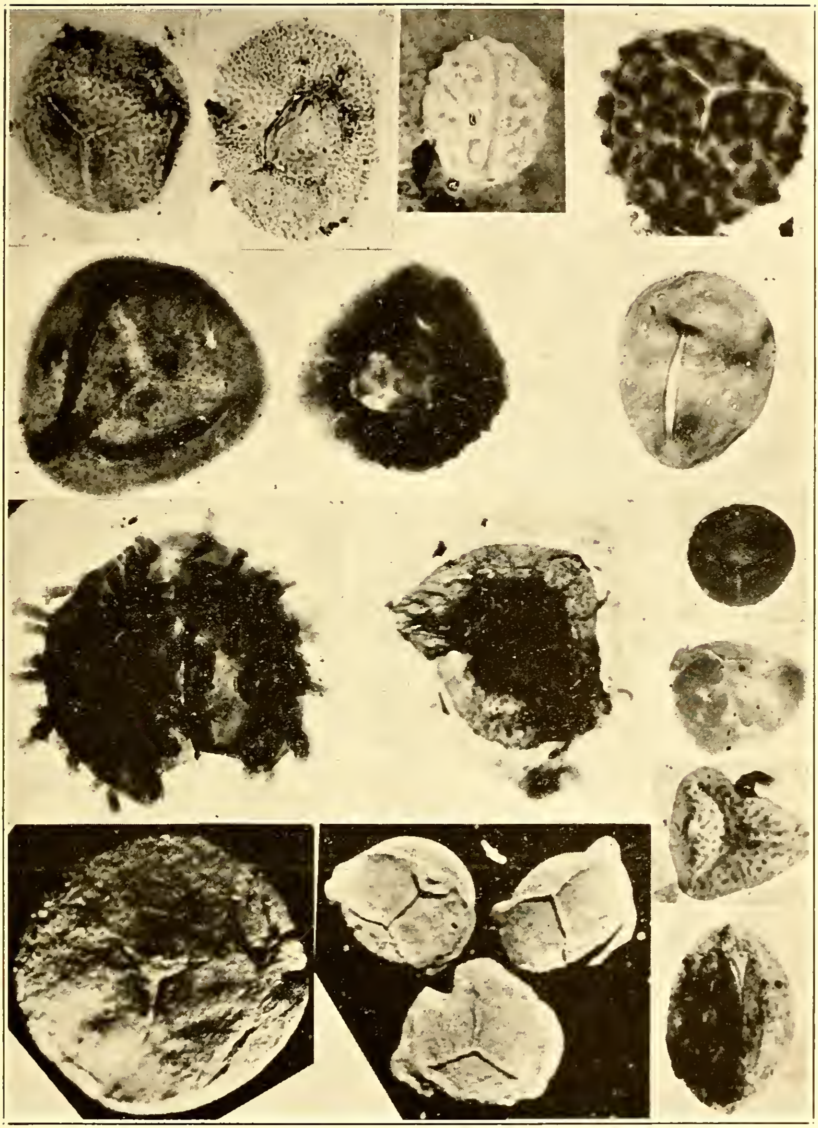


Plate XIV.—A few of the different types of spores found in coals.

their ancestors (the Lepidodendrons, Plate III), during the Carboniferous times, grew to be large trees. The stems and branches are clothed with small leaves, having a moss-like appearance. Often the erect branches are terminated by conspicuous cones. These cones have the appearance of clubs, and from that and their moss-like appearance they get the name of club-mosses. The cone (Plate XIII A), it is seen, consists of thick and closely overlapping leaves. These are the sporophylls. On the underside of each of these is a globular sack (B, Plate XIII), the sporangium, each filled with thousands of spores (C and D, Plate XIII). It is the source of the lycopodium powder used for various purposes and for sale in drug stores. In these cases the spores are all of the same size, and small, and are usually designated by the term of "microspores". There are found in the coals certain large spores called "megaspores". The origin of the megaspores is well illustrated in some of the Lycopodiales, particularly in the genus Selaginella, which grows in warmer climates, and is locally only found in the greenhouse. Although more delicate, it looks very much like lycopodium. Certain terminal branches bear cones just as lycopodium; but the important difference is that the sporophylls in the upper part of the cone bear, as in Lycopodium, numerous small or microspores, while the sporophylls in the lower part of the cones each bear only four large or megaspores.

In the last stages of the development of the spores, the last two divisions of the mother cells occur simultaneously, giving rise to four cells which develop together into four mature spores, and are therefore called "tetraspores". This position in fours lends each spore a characteristic triradiate mark, called the "tetrasporic mark" (Plate XIV), which identifies it as a spore. Every spore consists of the living or protoplasmic part, which is enclosed by a thin membrane, the entine. The whole is covered by a thick-walled outer wall or exine. The protoplasmic or living part decays

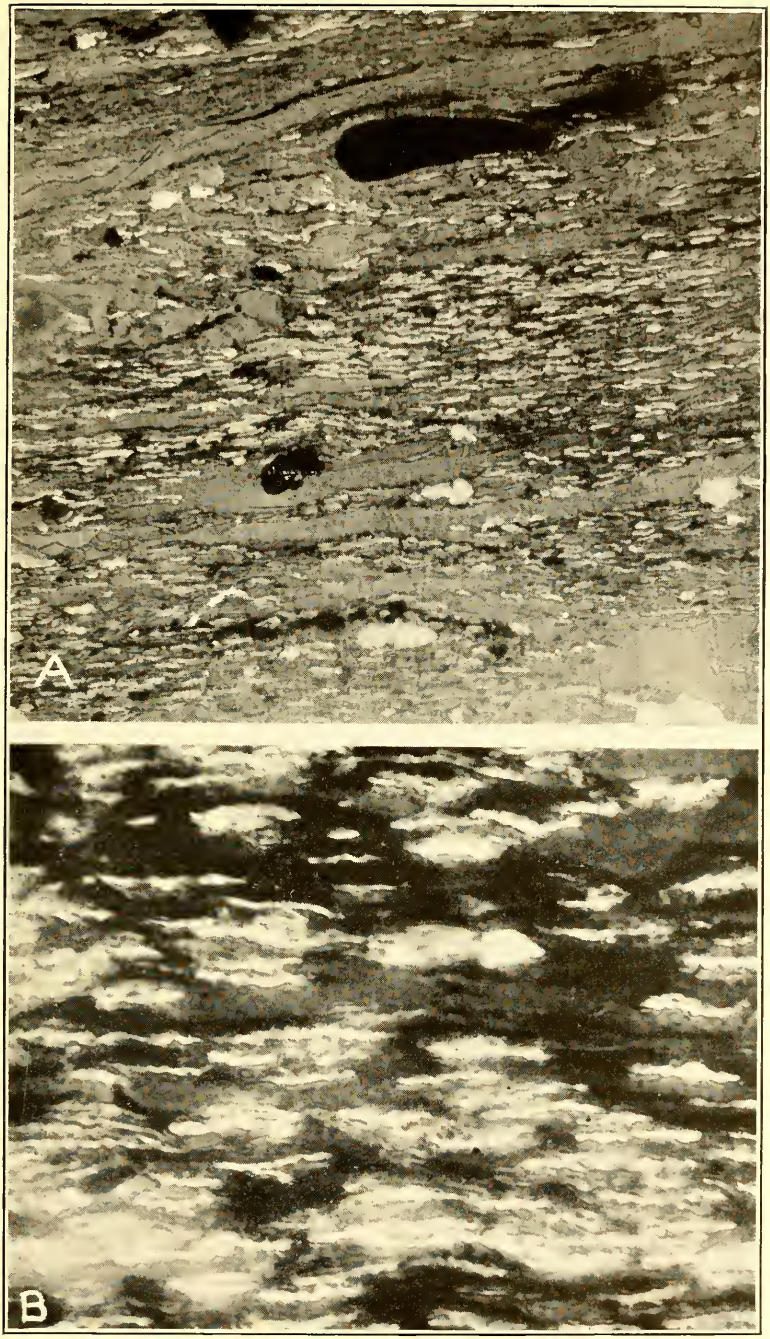


Plate XV. A.—Thin cross section of Pittsburgh coal showing attritus rich in the "Pittsburgh Spore". X200.

Plate XV. B.—Part of the same at a high magnification, showing crinkled appearance of Pittsburgh Spore in cross section. X1000. (After Thiessen and Staud.)

readily, and contributes nothing, or at the most but little, to the coals. On the other hand, the outer walls or exines are composed of resistant substances like waxes, oils, and cuto-cellulose, and withstand all the coal-forming processes, persist well preserved in the coals, and have contributed a considerable part to them.

A fairly large number of different kinds of spores are found in all the coals taken together (Plate XIV) but in any one bed relatively few kinds are present. In other words, each coal bed has only a few kinds of spores, and one or two, and sometimes three kinds, are found predominating in that bed only, and nowhere else or only sparingly in another bed or other beds. Sometimes there may be quite a number of different kinds in a bed, but one kind only predominates in that bed. The Pittsburgh coal bed, for example, has a relatively large number of spores and also a considerable number of different kinds of spores; but the largest number, by far, is represented by one kind, a rather small spore with a complex sculpturing (Plates XV and XVI). And as this spore is found in no other coal, it is an easy matter to distinguish a Pittsburgh coal from any other coal. In the same way coals from other beds may be distinguished.

RESINS.

A large number of plants, such as the pines, spruces, tamarack and many others, contain a considerable amount of resinous matter stored up in resin-ducts and reservoirs. The amount of these resins varies from a fraction to as high as ten per cent. of the living plant. In the lignites it is easy to find these resinous matters still intact in the wood and other tissues exactly where they would be expected to be found (Plates XVII and XVIII). They are also found in the attritus of the lignites, the wood or other tissues simply having decayed, while the resins dropped out undecayed. (Plate XIX). The identity of the resins in the

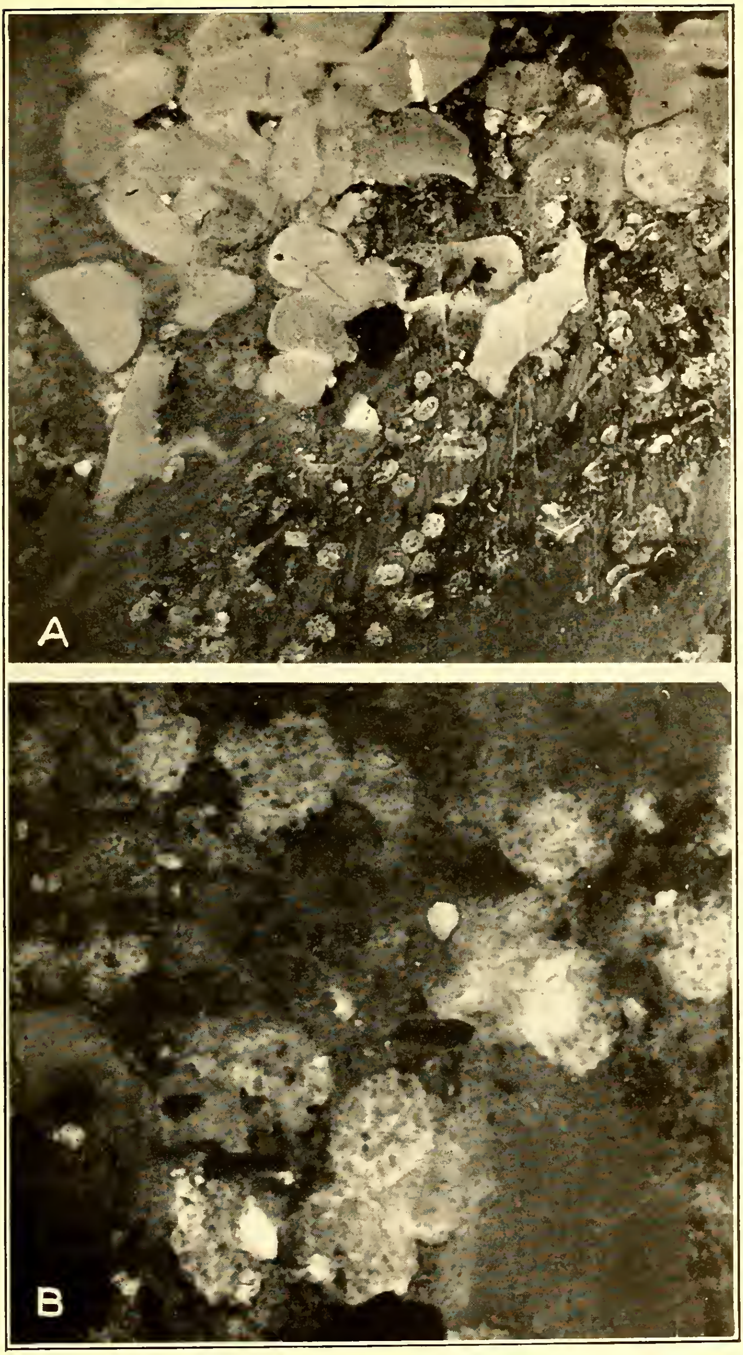


Plate XVI. A.—Thin horizontal section of Pittsburgh coal, showing attritus with spores and resinous and humic matter. X200.

Plate XVI. B.—Part of the same thin horizontal section shown in A, more highly magnified, showing characteristic appearance of the "Pittsburgh Spore" in horizontal section X1000. (After Thiessen and Staud.)

lignites is therefore certain. In the woody tissues of the bituminous coals, resinous-looking inclusions are also found (Plate VI B). In this case it is also safe to assume that they are the natural resins of the plant which gave rise to that part of the coal. In the attritus of the bituminous coals, also in numerous sections, resinous-appearing bodies usually form a considerable part of it (Plate XX); and by analogy we assume that they are natural resins of some coal-forming plant which rotted away, leaving the resins behind undecomposed.

The lignites furnish an interesting study as to how the more resistant substances accumulate in large proportions. In some cases lignites consist of 50 per cent. or more of resinous matter, the woody substances having decayed to such a proportion as to increase the resinous matter from a few per cent. to fifty per cent. and over (Plates XVIII and XIX). Something like this has also taken place in the bituminous coals. Many sections are met with in which the resinous matter has been concentrated so as to form more than half of the coal in the section.

CUTICLES.

As we all know, all leaves, fruits, and green stems of plants are covered with cuticles to protect them from insects, bacteria, moisture, or other injury. These cuticles are frequently covered with a layer of wax. The thickness of the cuticles and that of the waxy covering varies considerably, but in some plants the latter is so thick that they have become of industrial importance. Carnauba wax is a good example. The substances forming the cuticles are very resistant to decay. Cuticles are a common component in peat, due to their resistant nature. Similarly, in coals a considerable amount of cuticular matter is always found. In thin sections they appear as bright golden yellow bands. They usually go in pairs, and commonly have serrated

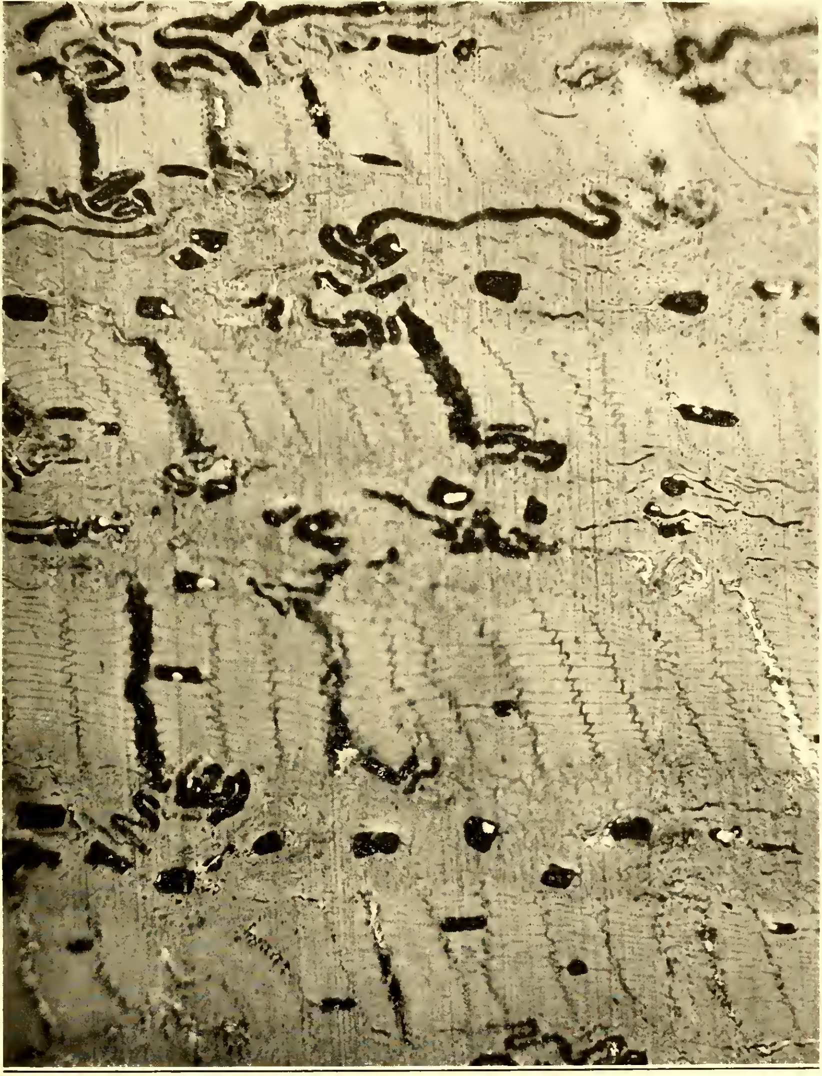


Plate XVII.—Thin cross section of Anthraxylon of Dakota lignite, being a cross-cut of its woody tissue, showing annual rings of wood, well preserved autumn wood, poorly preserved spring wood, and natural resin in situ. X200.

borders. In some sections cuticles compose a considerable part of the coal substances.

In a retrospect we see then that coal contains every constituent that remained in peat—namely, larger and smaller constituents derived from wood, woody degradation matter, cuticles, spores, pollen grains, and resins. Besides these, plants contained many other substances that were contributed to the deposit, but since they were present in small quantities in the plant, and furthermore were broadly distributed in the plant, they have been lost in the rubbish and are not recognizable in the coals under the microscope. That some of them are present in coal is shown by certain distillation products.

KINDS OF COAL.

It now remains to discuss what constitutes the different kinds of coal—namely, lignite, sub-bituminous, bituminous, anthracite, cannel coal, and boghead coal. From what has already been said it should be clear what are the differences in general in lignite, sub-bituminous coals, bituminous coals, and anthracite. They represent merely stages or steps in the coalification processes, in which peat represents the first and initial stages, the lignite of the Cretaceous and Tertiary periods, many thousands of years old and the bituminous coals of the Paleozoic era, many million years old, each being separated by very long time intervals. Furthermore, there are no hard and fast lines to be drawn between them, all grades and shades of transitions from one into the other are found. In some of the Western coals, transitions from low-rank lignites to semi-anthracite are found in one and the same bed. The differences in different ranks of coals are not caused by different kinds of materials that contributed to them, but caused by agencies of coalification. Geologists usually name time, pressure, and temperature as these causes. Time, it should be remembered, is in itself no agent; but it

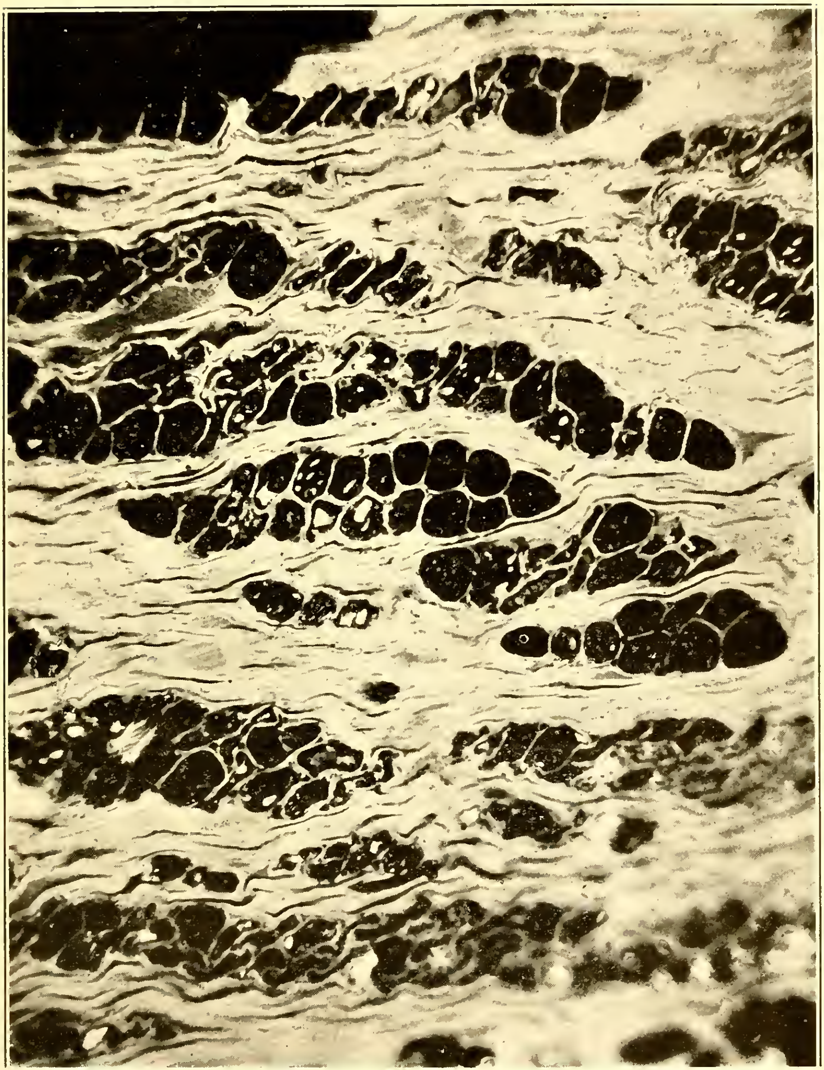


Plate XVIII.—Thin cross section of Dakota lignite, being tangential cut of the woody structure, showing natural resins in the ray cells. The cells other than the resin cells have been much decayed and compressed. X200.

is the duration during which an agent has an opportunity to act. It is believed that slow spontaneous chemical reactions are going on in most complex organic substances. In a short period the result of such reactions would be negligible; but over periods of thousands of years, or even millions of years, the total results must be large. Time was probably the greatest factor in the coalification process; but other factors must also be sought, because we have coals of the same age, and, as has been stated, coals in the same bed of different rank. Pressure is the factor that is most often thought of, because we find coals of higher rank in regions that are supposed to have been submitted to very high pressures. Earth movement, earth uplifts, and earth thrusts are said to be accompanied by high pressure. Coals in such regions, anthracite, for example, and coals of high rank in other parts of the country, are invariably associated with earth folds or are found in mountainous regions—in other words, in regions that have been subjected to high pressures. Experimentally it has not been demonstrated that pressure can change organic substances chemically, although it is known that pressure modifies reactions. We must look, therefore, to some other cause.

We all know that when we want to hasten a reaction we do not submit it to pressure, but warm it or heat it. Cooking a meal, for example, is merely a physical change accompanied by some chemical changes in the food brought about by slightly higher temperature. It is doubtful whether a pressure of hundreds of atmospheres would bring about changes as noticeable. It is therefore likely that the greater changes that have occurred in the anthracite or semi-anthracite over the bituminous coals, or the greater changes of sub-bituminous coals over the lignites in the same age or bed, are brought about by slightly higher temperatures. These temperatures need not have been very high. Long time would bring about a relatively great change at but a

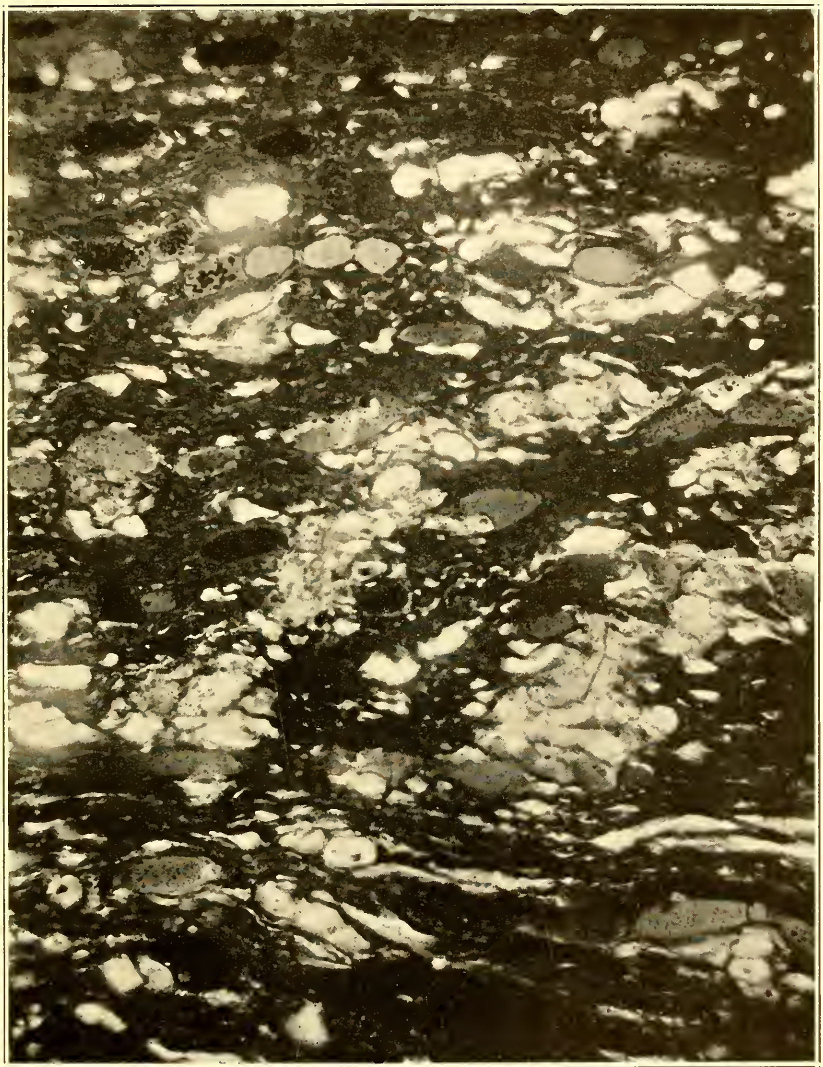


Plate XIX.—Thin cross section of Montana lignite, showing resinous matter in the attritus; two kinds are noticeable, light and a dark colored. X200.

slightly higher temperature. It has been shown that higher temperatures prevail in regions of the earth's crust, where movements are in progress, than in regions at rest. That coals in regions that have been subjected to stress and earth movements are of higher rank than those found in undisturbed regions is without question. Pressure probably also caused the anthracite and other coals to be more compact and of a higher specific gravity.

CANNEL COALS.

Cannel coals owe their differences as compared with ordinary coals to differences in origin and differences in the plant substances that compose them. The best cannel coals are composed almost entirely of spore matter (Plate XXI). It is believed that cannel coals were also formed in bogs, but that these were entirely of the aquatic type, that is, they were in form of a shallow lake. The aquatic plants growing in this bog bore numerous spores, and while all the rest of the plant substances decomposed, the spores being the most resistant parts, remained to form a deposit composed almost entirely of them. Some cannel coals also contain a considerable amount of the woody degradation matter of the plants, just enough of the humic débris having been left to make an impure cannel coal.

In conclusion, then, to look back upon the problem of what coals are actually composed of, we can do nothing better than to consider the chemical composition and nature of plants to which they owe their origin. The chemistry of plants and their products are quite well known, but unfortunately, before the plant substances were formed into coal, they were subjected to a process of decay and putrefaction. What the chemical nature of the substances was after that process was completed is not known. Furthermore, during the coalification processes further changes took place, removing the substances still further from their original

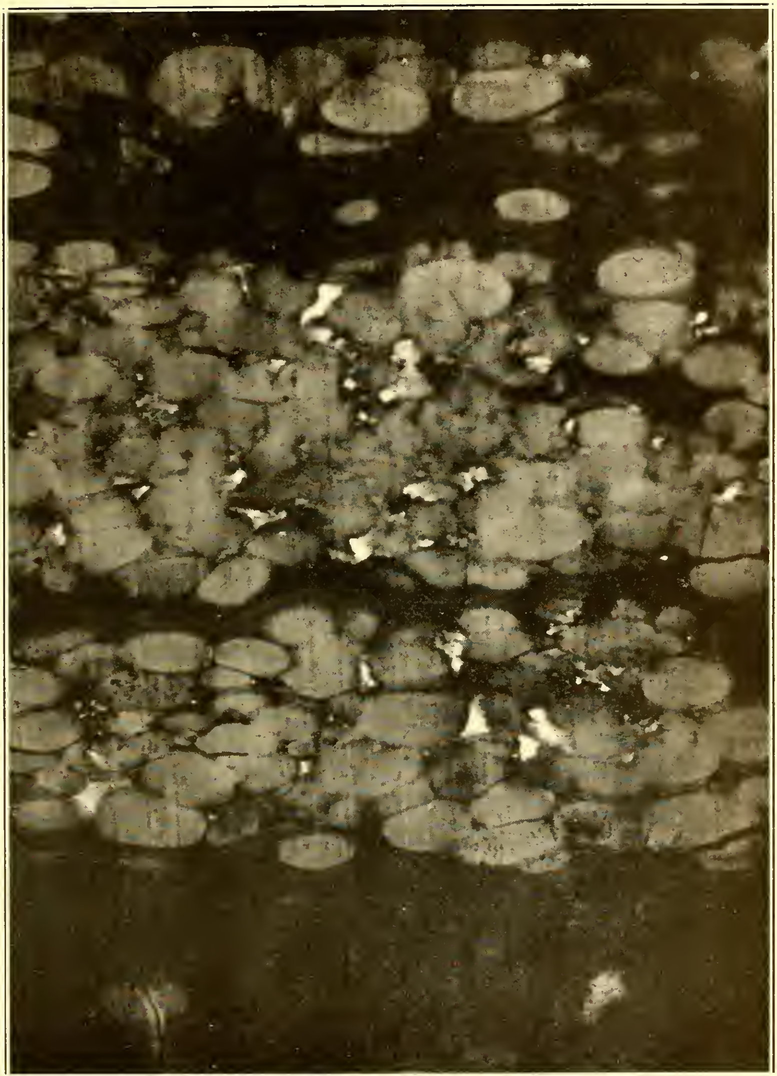


Plate XX.—Thin cross section of Upper Freeport coal, showing thin layers of resinous matter.

composition. All that we do know, therefore, is where certain constituents came from, and what their original composition was. This, however, gives us some idea as to what they may be and what they cannot be in the form of coal.

Microscopic Laboratory,
Chemical Division,
Pittsburgh Experiment Station,
Bureau of Mines,
June 30, 1924.

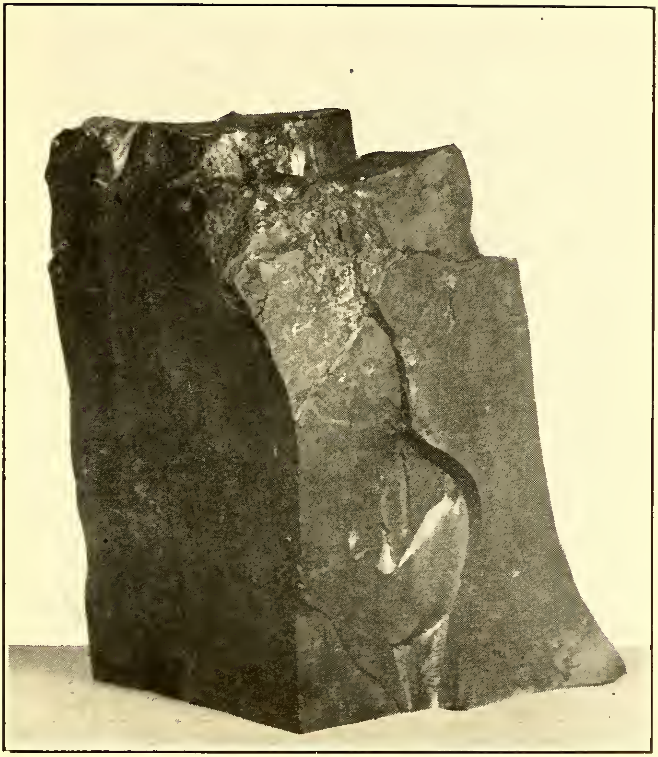


Plate XXI. A.—A lump of cannel coal from Cannelton, Beaver County, Pa. Notice the absence of layering. ½ natural size.

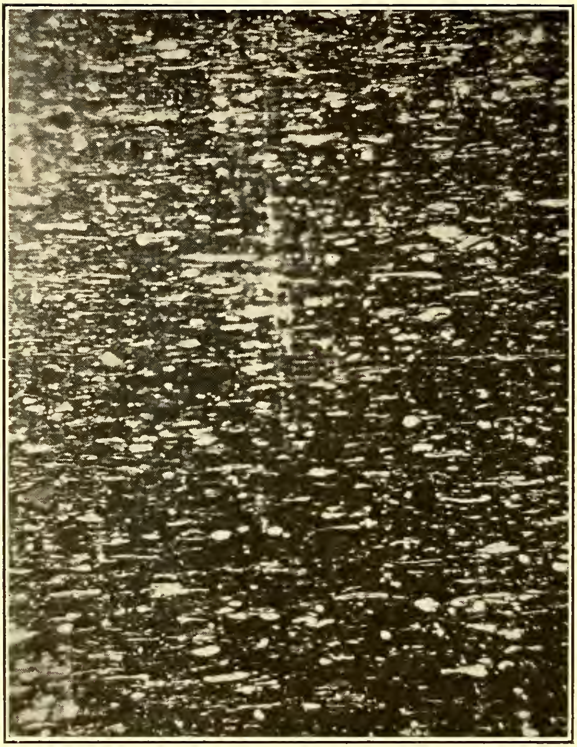
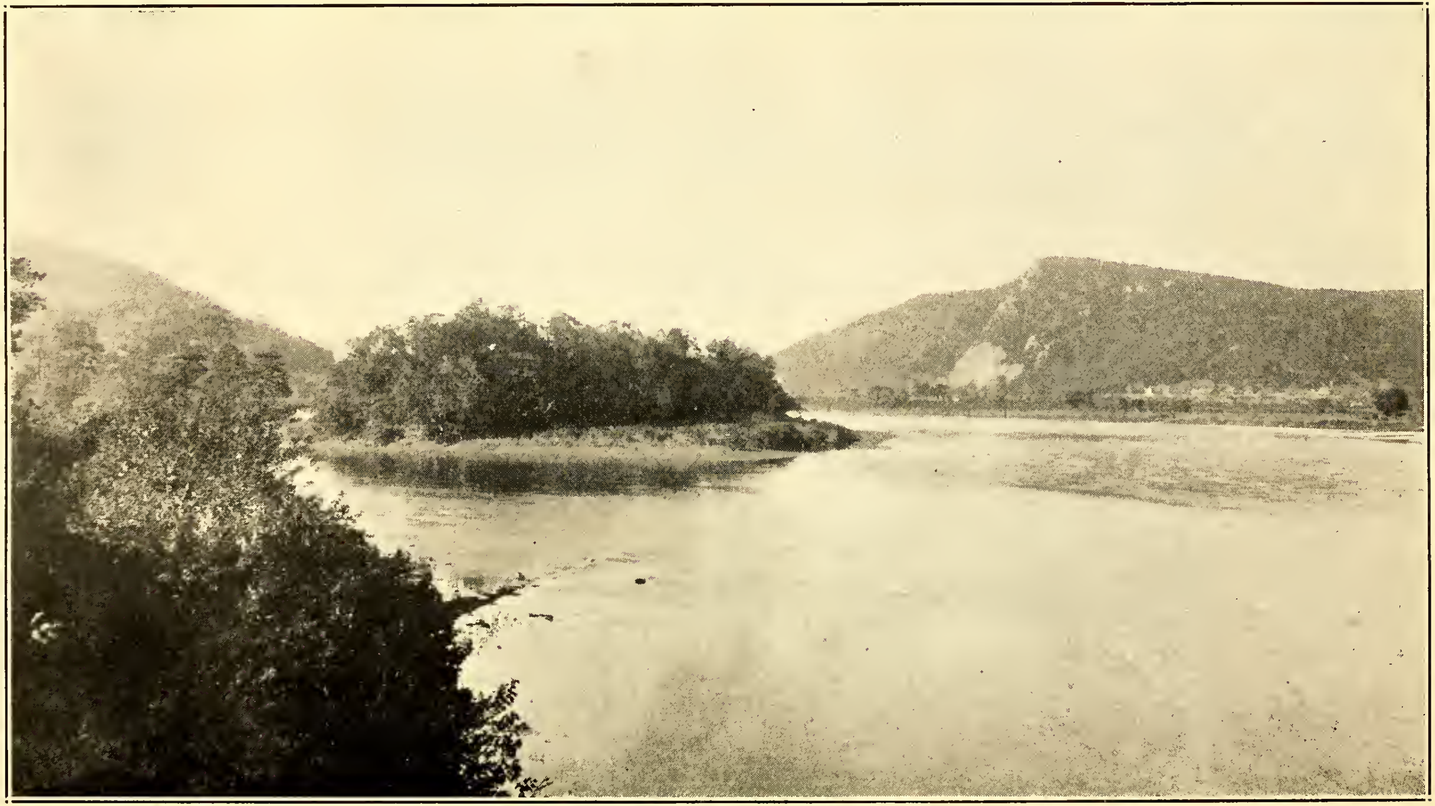


Plate XXI. B.—Thin cross section of Cannelton cannel coal. This is a spore-cannel coal, composed approximately of 90-95% spore matter. The white lineal spots represent spore matter. At a higher magnification the ground mass between the spores is also shown to be largely composed of spore matter. X100. (After Thiessen and Voorhees.)



SOUTHERN VIEW OF SCOVELL'S ISLAND

ABORIGINAL ROCK SHELTERS AND OTHER ARCHAEOLOGICAL NOTES OF WYOMING VALLEY AND VICINITY.

By Max Schrabisch.*

FOREWORD.

It was in the latter part of the month of May, 1923, that I received a letter from Miss Frances Dorrance, Director of the Wyoming Historical and Geological Society, of Wilkes-Barré, Luzerne County, Pennsylvania, inquiring if I could come to undertake an archaeological survey of Wyoming Valley and environs, devoting special attention to the study of prehistoric rock shelters known to be scattered throughout the surrounding mountains.

A few weeks previously Mr. Arthur C. Parker, then archaeologist of the State of New York, had been in Wilkes-Barre, having been requested by the Society to arrange and catalogue their magnificent archaeological collection displayed at their headquarters, 69 South Franklin Street. It so happened that Mr. Parker had for years been deeply interested in the prehistory of this region and being impressed with the opportunity it was likely to afford for more thorough studies, he took occasion to urge a systematic research of all this territory, including, in particular, the mountains north and south of the valley. Here, he averred, many a rock shelter, as yet unsuspected and untouched by relic hunters, was sure to be located, the exploration of which could not but shed additional light upon some of the problems bound up with the Indian history of this section. Recalling, moreover, that I had done considerable work along the line of rock shelter investigation, Mr. Parker recommended my services to the

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*The investigations here described were made possible by the gift of William Grant Payne, in the name of his daughter, Anna Payne; and of Frances Dorrance, in the name of her father, Benjamin Dorrance.

Society with the result that I was invited to assume the task.

I was glad to accept, for the region in question was sure to prove of consuming interest to one who had always felt strongly attracted by mountains and this all the more so since these mountains bade fair to be dotted with Indian rock abodes. For years I had been aware of the fact that Wyoming Valley was replete with both historic associations and those of the vanished race. Indeed, I had long viewed it as being invested with the glamor of romance. Small wonder that, while sojourning at White Haven, in the fall of 1920, for the purpose of studying the archaeology of Lehigh River Valley near that quiet little town, I conceived the plan of going to Wilkes-Barré as soon as an opportunity arose, knowing that there, along the valley of the North Branch of the Susquehanna, I should be at the headquarters of the tribes anciently inhabiting this part of Pennsylvania. It was therefore with genuine delight that I availed myself of the offer to spend a few months in Wilkes-Barré, an offer which permitted me to supplement somewhat the work so auspiciously begun along the Lehigh, some twenty miles farther south.

Accordingly, I arrived in Wilkes-Barré on June 14th, 1923, eager to contribute my efforts toward elucidating the problems peculiar to this part of Susquehanna River valley. I remained at work until the middle of July, when excessive heat and humidity combined compelled a temporary suspension. With the advent of cooler weather, by the middle of September, I resumed operations, continuing until nearly the first of December. Thus the time, during which I was actively engaged, amounted to exactly fifteen weeks.

Within these fifteen weeks I succeeded in locating and excavating nine rock shelters, three of which were in the valley proper, while the others lay in the hills to the north and south. Little attention was then paid to open encampments because it seemed that work along that line, especially in the valley, could no longer be productive of valuable results and this because of the widespread destruction of the original surface features, which commenced as soon as the white man appeared in these parts and has been going on apace.

In consequence of the cumulative effect of such destructive activities there is to-day little left of the camp sites once distributed broadcast over the valley and its environs. For this reason attention was at first concentrated upon the locating and examination of rock stations, nearly all of which were found to be situated in out-of-the-way places, where the original conditions had been preserved. Some open field work was done, however, as, for example, in the vicinity of Tunkhannock and Nuangola Lake.

Although the territory covered by this survey comprised no less than 150 square miles, it soon became apparent that further study would be required in order to obtain something like an adequate conception of the archaeology of this region. I therefore returned to Wilkes-Barré in the autumn of 1924, intending not only to endeavor to locate additional rock stations but to devote more time to the investigation of open camps. This time I spent ten weeks in the field and the results were most gratifying for, apart from the discovery of a large aboriginal rock shelter, the most important thus far noted hereabouts, I made a diligent survey of the upper river valley, between Pittston and Falls, and of the lower one, from Shickshinny down to Nescopeck. The region about Harvey's Lake, in Lake township, and Broadway, in Ross township, also came under scrutiny, making possible the charting of numerous camps, both large and small.

I also visited the remaining sites on both banks of the Susquehanna in Wyoming Valley, thus assuring myself of their accurate position. Mirable dictu, some of these continue to be quite recognizable, having been given over to agricultural pursuits, and occasional artifacts of Indian handiwork are still being recovered therefrom.

On this second survey the area explored amounted to about 100 square miles so that all told there have been covered thus far some 250 square miles of ground, much of it rough and difficult of approach.

My first object when arriving on the scene in 1923 was to acquaint myself with the local topography and also to endeavor to glean what information I could bearing on the task before me. By making unstinted use of every means of locomotion, I soon acquired a working knowledge of the lay of the land, and by interviewing old residents I succeeded in obtaining many a bit of interesting lore tending to facilitate matters.

While inspecting the Indian collection exhibited at the Museum of the Society, I could not but feel impressed with its size as well as the extraordinary variety and exquisite workmanship of many of the specimens shown, most of them recovered within what is called Wyoming Valley. Yet, at the same time, it seemed to me that a large proportion of these reminders of a bygone age had been gathered in a rather haphazard fashion, that is to say, without the necessary explanation concerning the localities or the conditions under which they were found. In short, it was clear that an army of collectors had been busy all these years hunting up these remains of a primitive industry, such remains having, as usual, been looked upon by them as an end in itself instead of being the means to an end. By failing to furnish this precious information, while time was still opportune, they unwittingly committed a sin of omission that can not be rectified at this late day.

Since the data which may be derived from the interpretation of the specimens and the circumstances accompanying them form almost the sole foundation of archaeology, the neglect to supply such data is therefore most deplorable from the scientific point of view. Now that practically all the prehistoric landmarks within Wyoming Valley have been depleted of their tell-tale signs and become reduced to a mere memory, there can never again be a chance for such a thing as a reliable research. But while the deposition in the local museum of many of the treasures once littering the old camping grounds is to be welcomed, the lack of adequate information means a permanent loss to archaeological science. With most of the important data connected with the finds irretrievably lost, it is by this time usually impossible to collect reliable evidence, to form any theories thereon. The mischief is due to the thoughtlessness of collectors, whose sole aim is invariably spoliation pure and simple.

In view of these conditions and with the mania to collect curiosities simply for their own sake being so widespread, because at the bottom of things so entirely human, it is not surprising to find that archaeologists are unanimous in declaring mere collectors to be a nuisance, destroying as they usually do, much valuable evidence, without thinking it worth their while to leave behind any notes. And it is this fact which separates the collector from the archaeologist.

TOPOGRAPHY OF REGION.

The section of country, known as Wyoming Valley, comprises a strip of land some sixteen miles long by three miles wide, running northeast and southwest from Campbell's Ledge, a picturesque eminence of frowning cliffs, 1364 feet high, north of Pittston, to West Nanticoke, its lower end. Lying at a minimum elevation of 520 feet above the level of the sea, it is a fertile tract, its soil being alluvium washed down from the mountain sides and deposited over the bottom lands by numerous streams, all of them tributary to the Susquehanna. Geologically, however, much of this soil owes its origin to the vicissitudes of the Ice Age, during which immense masses of moving ice or glaciers were active in grinding down the rock surfaces over which they passed, reducing them to the consistency of fine sand or gravel, which spread out over the land as fluvio-glacial deposits and thus came to contribute most of our best soils within the glaciated zone.

For a distance of many miles north of Campbell's Ledge the Susquehanna winds its way through narrow valleys, flanked by high hills and beetling cliffs, such as those between Wyoanna and Ransom. Opposite the Ledge, that is to say, to the west of it, it breaks through the mountains, so to speak, flowing southerly, and is immediately joined by the Lackawanna, its principal affluent in these parts, coming in from the east. At Pittston, near the junction of the two streams, its course changes to the southwest, first in a straight line as far as Forty Fort, thence by a series of sharp curves all the way down to West Nanticoke, Here it leaves Wyoming Valley through a gorge, with Tillsbury's Knob, a massive protuberance of naked rock walls, more than 1,000 feet in height, sentinelling it on the north and the extreme eastern portion of the Nanticoke-Mocanaqua ridge on the south.

West of Nanticoke, the river valley continues quite narrow, being skirted north and south by wooded hills. At Hunlock, on the north bank, the mountain is broken by a shallow notch, watered by Hunlock Creek, and at Shickshinny, six miles farther southwest, Shickshinny Mountain, 1500 feet high, is trenched by a deep gap, drained by Shickshinny Creek. The hills on the south bank, on the other hand, present a solid mass of rock, nine miles in length and averaging 1,300 feet in altitude, unbroken by any well defined pass.

Returning to Wyoming Valley, we find that north of the Susquehanna, between it and the foot of the mountains, there is a stretch of good tillable land, practically level, about a mile and a half in width and eight miles long, extending from West Pittston to below Kingston. Southwest of it, at Plymouth and opposite Richard Island, the hills approach the river, then recede again still farther southwest, giving rise to the broad flats near Avondale.

The principal streams on this side of the river are Abraham's, Toby's and Harvey's creeks, coming down the narrow valleys that divide the well timbered hills on the north. Most picturesque among these valleys is that drained by Harvey's Creek, flowing out of Harvey's Lake, some ten miles to the north. Many of these hills are more than 1,500 feet high and back of them stretches a rolling tableland, averaging 1,300 feet in elevation. Still higher mountains rear their heights farther north and northwest, conspicuous among which is Miller's Mountain, 2,227 feet high, and the North Mountain ridge, attaining a maximum elevation of 2,500 feet, north of Kitchen Creek.

The rocks composing the plateau just alluded to are mostly of Devonian age, *i. e.,* included in the Catskill formation, and as such they are devoid of coal. Along their southern margin, however, bounding Wyoming Valley, there is a well defined belt of carboniferous rocks, made up of shales and sandstones with numerous outcrops of Pottsville conglomerates, the latter consisting chiefly of quartz pebbles cemented together by siliceous material.

As regards the south side of the river valley, it is far more undulating in character in that most of it is intersected by hills and ridges, gullied by dells and rocky ravines. The only considerable level tract in this part of the valley is situated along the river, extending eastward from the mouth of Buttonwood Creek, near Butzbach, and including the northern part of the City of Wilkes-Barré. Its dimensions are four miles long by one mile in width.

An abundance of streams drain all this region. Farthest east are Mill Creek and Laurel Run, which unite their waters a short distance from the river and empty into it south of Midvale. Another stream is Solomon's Creek, the lowest reach of which is known as Buttonwood Creek, and the southernmost part of the valley is watered by Warrior Run and Nanticoke Creek. All these brooks issue from the mountainous territory east, south and southwest of Wilkes-Barré.

On the south, about three miles back of the river and roughly paralleling it, lies Wilkes-Barré Mountain, forming the northern margin of the mountainous region just referred to. It is a ridge broken up into a succession of many individual hills, trending east-northeast and south-southwest, about fifteen miles long by one mile wide, and varying in altitude from 1,200 to over 1,600 feet.

One of the most charming features of this mountain is the occurrence of numerous defiles or notches, cleaving it at right angles to its major axis, each watered by a brook. In point of ruggedness and grandeur of scenery Laurel Run Gap stands unsurpassed hereabouts. Nearly a mile in length, it trenches deeply into the mountain, exposing along its western border towering rock walls, with Laurel Run laving their base, as it brawls down its boulder-strewn channel. It is situated three miles due east of Wilkes-Barré, as the crow flies.

The longest natural pass across this mountain lies six miles southwest of Laurel Run Gap, connecting Ashley with Mountain Top. It divides the ridge into two parts of about equal length and is likewise famed for its scenic attractions. The remaining western section of the mountain is cut into by minor passes, namely, Sugar Notch, Warrior, Weller and Espy gaps.

Back of the eastern section of Wilkes-Barré Mountain and separated from it by a high-level depression, looms Wyoming Mountain 2,100 feet at its highest point, ranging southeasterly to Bear Creek. Back of its westerly portion rises Penobscot Mountain, terminating on the banks of the Susquehanna, just below Mocanaqua. Its highest elevation is marked by Haystack Mountain, 1,860 feet above the tides.

As the rocks constituting all these hills belong to the carboniferous age, coal bearing strata occur in great abundance, indicated, as usual, by frequent outcrops of Pottsville conglomerate.

For the sake of completeness I must not omit to mention the charming sheets of water, nestling along the southern base of Penobscot Mountain. The most westerly of these is Lily Pond, now called Long Pond. East of it lie Little Lily Pond and Nuangola Lake, formerly bearing the prosaic name of Triangular Pond. They are veritable eyes of nature, to use one of Thoreau's tropes, and, like most bodies of water hereabouts, they are of glacial origin, either so-called obstruction basins or else occupying the site of basins, gouged out in the rock by moving ice.

HISTORICAL NOTES.

Little is known regarding the history of the several aboriginal tribes dwelling in and near Wyoming Valley prior to the advent of the white man. Having been the converging point of so many peoples, differing in culture and customs, one is here confronted with a veritable Gordian knot, a knot requiring for its solution more than the simple device of an Alexander the Great, who, unable to unravel it, readily cut it asunder.

According to some authorities, notably the late Christopher Wren, the valley and surrounding mountains were merely a game preserve, resorted to successively by neighboring clans, each of whom lingered but a short time for the purpose of hunting and fishing. If this was the case, the valley was a sort of communal ground, that is, held in common by a group of tribes. Similarly, Mr. Arthur C. Parker, who has given much time and study to the questions here involved, holds that it was indeed a game preserve, but he adds that it served, moreover, as an asylum for vassal tribes, i. e., such as had been reduced to a state of bondage by the war-like Iroquois.

Certain it is, that the Iroquois claimed the land by right of conquest, having, in 1675, defeated the Susquehannocks, their near kinsfolk, then occupying it, at the forks of the lower Susquehanna. We further learn from the writings of John Smith that, when he landed in Virginia, in 1607, the Susquehannocks occupied the river from the New York boundary down to Chesapeake Bay. Again it seems reasonably sure that the Wassawomeke, an Algonkin tribe, lived in Wyoming Valley as early as 1607. According to John Smith, they were the mortal enemies of the Susquehannocks, but came to meet their doom at the hands of the Iroquois, who destroyed them in 1652.

Speaking of the name Wassawomeke, we may be correct in presuming it to be identical with "M'cheuwaming", meaning "at the great plains or flats," which was the Lenni Lenâpé appellation for the valley under discussion, now known in its badly corrupted form as "Wyoming". The Iroquois equivalent for the name was Skehandowana, meaning "at the great flats".

As already stated, Wyoming Valley was a region remarkable for the various aboriginal peoples once assembled within its borders. Its population was never quite homogeneous, nor does it matter much whether they came here of their own choice in the course of their wanderings or were brought here through force of circumstances. To follow the shiftings or peregrinations of a prehistoric people is, to be sure, a fascinating subject, but, in this instance, wholly out of the question, for the available data, serving to light up the dim past, are woefully meagre and do not reach back beyond the time when the alien adventurer first set foot upon the shores of the Atlantic. In the absence of written records the voice of tradition, always uncertain, becomes our main reliance with the result that our lore is bound to be largely conjectural.

In the present state of our knowledge there is some ground for assuming that the Lenni Lenâpé and other Algonkin tribes once dwelt for an indefinite period at the headwaters of the Ohio. For some reason or other these tribes saw fit to remove farther east, the Lenâpé penetrating across New Jersey as far as the Atlantic coast, making Delaware River their most favored stamping ground.

Coming nearer the historical period, we learn of two branches of the Shawnees being settled in Lancaster County, Pennsylvania. Before that, they seem to have lived in Georgia, near the mouth of the Cumberland. While we lack information as to the time when they first arrived in Pennsylvania, there are authentic data showing that one of these branches came to Wyoming Valley about 1701, at the invitation, it is said, of the Iroquois or Five Nations. The other branch, at about the same time, also broke camp migrating to Monroe County, Pennsylvania, and not, as has been erroneously stated, to Pahoqualing, in New Jersey. Here they established a town on Delaware River at a point three miles north of the Water Gap, directly opposite Buckwood Park, on the Jersey side of the river. Subsequently, in 1728, this clan of the Shawnees under their sachem Kakowatcheky was ordered by the Iroquois to join their kinsmen on the flats below Plymouth, in Wyoming Valley. In 1743, Kakowatcheky and his clan removed to Logstown, on the Ohio. After his departure Kakowatcheky was succeeded as chief of Wyoming by Packsinosa. The latter was among those who executed a deed to the Pennsylvanians in 1749, conveying land between Delaware and Susquehanna rivers, north of the Blue mountains and south of Wyoming. As for the Nanticoke tribe of Redmen, who likewise settled in Wyoming Valley, they appear to have proceeded from what is now the State of Maryland or thereabouts.

In the first part of the eighteenth century we find living in Wyoming Valley no less than three distinct tribes, to-wit, the Shawnees, the Nanticokes and several small bands of what was probably the Munsee division of the Lenni Lenâpé, so generally called Delawares. This is purely a white man's name referring to the British Lord Delaware and an absurd substitution for an ancient Indian tribal name. As for the derivation of the term Munsee or Minsi, Dr. D. G. Brinton has this to say: "From investigations among living Delawares, Minsi, properly Minsiu, formerly Min-assin-iu, means 'people of the stony country', or briefly, 'mountaineers'. It is the synthesis of Minthiu, 'to be scattered', and achsin, 'stone', according to the best native authority."

All these tribes were subject to the jurisdiction of the original Five Nations, a confederacy which subsequently, through the incorporation of the Tuscaroras, became the Six Nations. Called the Romans of America, because of their genius for organization and shrewd statecraft, they maintained possession of the land until the year 1754, when it was purchased from them by the Susquehanna Company, composed of enterprising Connecticut men.

There is no doubt that the Iroquois had reduced the Lenni Lenâpé, in particular, to a state of the most humiliating bondage in that they were forced to pay tribute and could not make any land transfers without first obtaining their permission. Not only that, but their masters contemptuously referred to them as women, having, as they said, put petticoats on them. We know, moreover, that the Lenâpé were commanded by the Six Nations to leave their lands between the forks of the Lehigh and the Delaware, in 1742, and that they thereupon settled with their chief Nutimus on the site of Wilkes-Barré, opposite Wyoming town, and at Niskebeckon, on the left bank of the North Branch of the Susquehanna, above the mouth of Nescopeck Creek, Luzerne County, Pennsylvania.

THE CULTURE COMPLEX OF THE VALLEY.

At the dawn of the historic period and maybe long before that the tribes resident on the North Branch of the Susquehanna and adjacent territory were largely, it seems, of Iroquois stock. Variously called Susquehannocks, Andaste and Conestoga, if these names are indeed interchangeable, they had their headquarters in that region about Athens, on the upper Susquehanna. Their culture is little understood but it represents, in all probability, an early stage of Iroquoian industry.

Subsequently, their near kinsmen, the Five Nations or Iroquois, living farther north in what is now New York State, took forcible possession of this part of Pennsylvania, exterminating or enslaving whomever they encountered. The Iroquois, having been a masterful and progressive people, were bound to leave their impress upon the tribes who came under their control and this all the more readily since, apart from their political and military achievements, they could lay claim to a material culture generally of a higher order than that of their dependents or any other clan of Algonkin stock in the Middle Atlantic area. Naturally enough, the influence they exerted upon the vanquished was in the main of an industrial character. For one thing, they introduced among them a type of earthenware superior alike in shape and ornamentation.

The clans thus reduced to a state of servitude were the Munsee division of the Lenni Lenâpé, the Shawnees and the Nanticokes, all of them inhabiting Wyoming Valley and vicinity in the first half of the eighteenth century. Though the contact established between master and servant was one of short duration, everything goes to prove that the latter derived a considerable cultural impetus from the former.

And, here, several questions arise, namely, to what extent were they thus influenced and did Iroquoian or Algonkin influence predominate in the valley. The answer can be supplied only by a study of the remains here found. Hence it will be necessary briefly to set forth the characteristic features of the two cultures, to show, in particular, wherein they differed and also what they held in common. Having done so, we shall be prepared to correlate our data and, by using the criteria furnished by local collections of cultural objects, to gauge more correctly the various influences here noted.

GENERAL CHARACTERISTICS OF IROQUOIAN CULTURE.

As already intimated, there exists throughout all this region a substratum of Andaste-Iroquois culture, one essentially identical with that of the Five Nations, exhibiting Pan-Iroquois features along with minor local differentiations. And may not the ancient forts, observed by the first settlers along Toby's Creek and at Plainsville, be reminiscent of the days when people of Andaste-Iroquoian stock dwelt in Wyoming Valley to the exclusion of any others? Such fortified places were once quite common among the Five Nations and their congeners. They usually lay on low hilltops, consisting either in log stockades or earthen circumvallations.

The Iroquois of both New York and Pennsylvania relied almost exclusively upon clay, bone and antler as raw materials in the manufacture of a great variety of objects, either of domestic use or of the chase. In this respect their material culture or industry was in marked contra-distinction to that of the Algonkin tribes who availed themselves largely of minerals as raw materials for their implements.

Their work in clay, particularly, testified to a high degree of skill and as producers of fictile ware or pottery they stood unsurpassed among the aboriginal people of the Atlantic seaboard. Their pottery jars had many peculiar features such as the usually round bottom, the constricted neck, the broad projecting collar, often artistically decorated and, occasionally, the angular or peaked rim. This kind of rim is never found on Algonkin jars, the nearest approach to it being the flaring lip. The pots were ornamented with incised or impressed lines of geometric patterns, also the chevron design, and not infrequently with conventionalized human faces luted on to the collar of the jar. In some cases they were merely fabric—or cord-marked, this being probably done with a paddle wrapt with textile.

Their pipes were marvels of primitive art. Originally, it seems, of earthenware and later on also of stone and terra cotta, they were frequently of the coronet style, so-called, and decorated with effigies of men and animals.

Bone and antler they employed for a large variety of tools like arrow points, awls, needles, gravers, fish hooks, harpoons and combs.

Minerals, on the other hand, were seldom made use of, excepting flint for small triangular arrow points, oval knives and scrapers. Pebbles of close-grained stone were likewise used for mullers or corn grinders, hammerstones, netsinkers and celts, the latter being their substitute for tomahawks. As a matter of fact, grooved tomahawks or axes and notched adzes have hardly ever been found on Iroquoian sites.

The triangular points are distinctly characteristic of Iroquoian culture and it is worth noting that the workmanship displayed in their manufacture as well as in that of the oval knives is, if not superior, fully on a par with the best work turned out by their contemporaries along the Atlantic seaboard.

FEATURES OF ALGONKIN INDUSTRY.

In contrast with the Iroquois the Algonkin tribes specialized in stone work or the chipping of flint and similar silicates, depending but little upon bone and antler. In the fashioning of arrow points and other artifacts they availed themselves of a great variety of minerals such as quartz, chert, jasper, argillite, rhyolite and even slate, while the Iroquois, in so far as they used stone, confined themselves almost wholly to flint for their triangular points. Hence, stemmed, barbed or notched projectile points, so common among the Algonkin, were quite foreign to them, being probably intrusive whenever noted on their camping grounds. This does seem strange since, along with flint, the minerals mentioned above were extensively employed elsewhere, being readily workable and permitting, withal, of a high finish.

Again, though such articles as grooved axes, pestles, soapstone vessels, semi-lunar knives, perforated slate gorgets and rubbed slate points are characteristic of the Algonkins, constituting, as they did, an important part of their industry, they are rarely met with on sites recognized as Iroquoian.

As previously stated, Algonkin earthenware was comparatively crude at once in shape and embellishment. The bottom of the jars was usually pointed and the decoration consisted mainly of cord-markings and series of stamped, dotted lines, produced most likely by means of a roulette, it being impressed on the clay while it was yet soft. This simple sort of ornamentation was indeed not unknown to the Iroquois though rarely used by them.

Referring to tobacco pipes, the Algonkin product was nearly always of clay and of a variety of shapes like the elbow and monitor or platform type. The latter was evidently foreign to the Iroquois. Pipes with effigies of man or beast, luted to the bowl, so frequently noted on Iroquoian camp sites, have but seldom been found within Algonkin areas. Among the few localities that have yielded this kind of pipes, is a prehistoric rock station near Sloatsburg, in the Ramapo mountains, Rockland County, New York. Here, the writer unearthed four rim sherds, each exhibiting a conventionalized human head in high relief, with the eyes indicated by tiny holes and the mouth by a slit.

THE TESTIMONY OF THE REMAINS.

In the preceding the fact was stressed that Iroquoian sites abound in pottery, often artistically wrought, effigy pipes, articles of bone and antler with but very few of stone, and that, contrariwise, Algonkin sites yield pottery that is mostly crude, and numerous stone tools, while implements made of bone are practically absent.

What, now, do the cultural remains, so far as found in Wyoming Valley, tell us? To begin with, there has here been noted a great variety of artifacts common to both cultures, to-wit, pitted handhammers, mullers, mortars, netsinkers, celts, gorgets, bannerstones, knives, scrapers as well as awls and needles of bone or antler. Again, there have been found such typically Algonkin objects as grooved axes and adzes, gouges and pestles.

As for utensils made of clay like pottery vessels or pipes, jars of pure Iroquoian or Andaste-Iroquoian form, have not infrequently been discovered. A specimen of the latter type, for example, was encountered in a rock shelter on Lehigh River, about a mile north of White Haven. On the other hand, jars of distinctly Algonkin origin have been come across along with intermediate types, displaying in form and ornamentation a combination of the Algonkin and Iroquoian styles, as when a heavy overhanging collar is found decorated with Lenâpé patterns of stamped dotted lines. But so preponderant was the Iroquoian influence hereabouts that pottery from purely Algonkin sites and rock shelters partakes pronouncedly of Iroquoian characteristics.

Speaking of pipes, we again observe a mingling of Algonkin and Iroquois cultures. And, to be sure, examination of several large local collections makes this point perfectly clear, for they contain terracotta and effigy pipes, often of coronet style, which are Iroquois, as well as earthenware pipes of trumpet, elbow and monitor shape, referable to the Algonkin. The monitor or platform shape is distinctly so, being, it seems entirely absent on Iroquoian encampments.

Along with vast quantities of projectile points, both stemmed and notched, and doubtless of Algonkin origin, there have been recovered in the valley thousands of triangular points, invariably of flinty material. The occurrence in such numbers of this latter type, which is distinctly Iroquois, tells in itself an eloquent story of contact of the two groups of Redmen within this territory.

An assemblage of remains, such as is here seen. reveals plainly enough a mingling of Algonkin and Andaste-Iroquoian industries, to say nothing of other ethnic elements that may occasionally have strayed this way. Nor can there be any doubt that the Iroquoian culture, being the more advanced, prevailed over that of their vassals, the Lenni Lenâpé, Shawnees and Nanticokes. The cultural impetus, the latter received, appears to be most strikingly emphasized in the improvement they displayed in their technique of pottery-making.

Irrespective of problems like the one just set forth, the character of the local remains is such as to lead one to think that, on the whole, the culture anciently centering in Wyoming Valley was of no mean order. At any rate, comparisons between its primitive industry and that of Delaware River valley, where Lenâpé art is presumed to have reached the climax of its development, are apparently not discreditable to the former. The general character of the handiwork peculiar to the valley and its environs does not always, it is true, bespeak a superior technique, a fact which may, without question, be largely accounted for by the widespread use of poor material, viz., such as did not readily lend itself to elaboration or did not permit of a high finish in workmanship. Among the stone tools picked up in the valley crude material does indeed seem to predominate. On the other hand, given good material, the prehistoric tool makers were well able to turn out excellent work as is evidenced by the quantities of artifacts wrought with remarkable skill. How many of the tools were made here and how many were extraneous is an interesting question.

Archaeological remains discovered along Wyoming Valley have been frequently found associated with articles of European manufacture such as objects of brass, glass beads and steel knives. Obviously, a fact like this shows colonial contact and is therefore reminiscent of the barter which was established between the red and white man as soon as the latter entered the valley.

Some students of the prehistory of this section have voiced the opinion that Wyoming Valley played a more important part in historic than in prehistoric times. Conversely, they maintain that from Columbia down to the mouth of the Susquehanna the evidence of ancient occupation far exceeds that of the prehistoric period. It is not easy to say how nearly statements such as these may be correct or approach actual truth, for our knowledge is fragmentary and full of lacunae, nor is there any hope that the veil can ever be lifted permitting us to view what will most likely always remain a mystery. Could we but know, for instance, when the Susquehanna was first glimpsed by mortal eye, one of the most baffling archaeological problems affecting this area would at once be solved. It may have been a thousand years ago or much more. Quien sabe!

Unquestionably, Susquehanna River played a momentous part in the life of these genuine Americans, for not only were many of their largest villages situated along its banks, but it was, we may be sure, the theatre of great events unrecorded in history. In this connection it may not be amiss to draw a parallel between this stream and the Delaware farther east with respect to the relative archaeologic significance of the two. At the outset, it is to be remarked that the Delaware River has been explored far more thoroughly than the Susquehanna. As a result of the classical researches of Professor Ernst Volk and the life-long work of Dr. C. C. Abbott, both of Trenton, New Jersey, confined, to be sure, to the lower but prehistorically most important section of the stream, there is a wealth of information testifying to its ancient and prolonged occupation on the part of the redskins. My own labors along the river (see bulletins 9, 13 and 18 of the archaeological survey of New Jersey) from Lackawaxen down to Trenton, supplementing those of Messrs. Volk and Abbott, uphold in every particular the truth of the conclusions reached by them. Briefly, the presumption, to-day, is in favor of assuming that the Delaware exceeded the Susquehanna in point of prehistoric importance. In making this assertion, the imperfect state of archaeologic research along the latter is fully recognized, that is to say, future studies, conducted systematically, may materially affect the above comparative verdict, at present, it would appear, agreeing with the facts.

DESTRUCTION OF ORIGINAL SURFACE FEATURES.

Like all primitive peoples, representing the childhood of mankind, the Redman was a creature of the great outdoors. Whatever may have been his attitude toward Nature, his race has generally been credited with having been keenly sensitive to her infinite charms and responding to her every mood. No doubt, Wyoming Valley and its environs proved very attractive to him, for, apart from its esthetic loveliness, it strongly appealed to him for a purely utilitarian reason, namely, as a potential source of an unlimited food supply. At all events, the enclosing mountains appear to have teemed at his time with many species of wild life, including plenty of deer, his favorite quarry. The streams abounded in trout, the river was well stocked with other fish and the fertile flats bordering it held out a promise of rich harvests of maize, beans and squashes.

For the self-same reasons, the first white men invading the valley became instantly impressed with its matchless advantages in the way of agriculture and having once taken possession, they were ready to defend it against almost any odds. Yet, withal, they did not so much as suspect the untold treasures in the shape of immense deposits of coal here hidden in the bosom of the earth.

History tells us that Count Zinzendorf, head of the colony of Moravian brethren at Bethlehem, Pennsylvania, was the first European to set foot upon the valley, as early as the year 1742. While this may be true, it seems probable that Conrad Weiser, the celebrated Indian interpreter and contemporary of the Count, preceded him in a visit to this region.

All the early reports, describing the valley, extol its many beauties, emphasizing that it presented as fair a landscape as any to be found in the State of Pennsylvania. Yet, ever since that time, man, the great destroyer, has been busy annihilating Nature's handiwork. And such have been the changes wrought that the poor Indian, could he come back, would be utterly unable to recognize the land once so familiar to him.

Civilized man, so called, is governed entirely by the principle of utility. Actuated by stern necessity, he is compelled to make Nature yield her riches to her utmost capacity. In the course of his operations he is bound to modify the face of the earth, searching her solid crust for buried treasures of coal and minerals, cutting down the forests and hounding to death the creatures of the air, land and water. But while he must do all this in order to live there is no disputing the fact that hand in hand with his activities there goes a certain amount of unnecessary destruction.

And what is the picture exhibited by Wyoming Valley to-day? Surely, the major topographic features of the region are still in evidence, as of yore. Susquehanna River is still traversing the length of the valley and the mountains flanking it north and south are the same as untold thousands of years ago. Yet, aside from this, vast changes have been effected, though only with respect to minor surface features, amounting in the aggregate to an almost complete metamorphosis of all this area. The virgin forests are gone and have been replaced by open fields or thickly settled communities. The river is polluted and silted up with coal dust, making it impossible for fish to exist in its waters. The valley and adjoining hills show the workings of innumerable mine openings, the land round about them, once fertile tracts, is covered with huge piles of slate and culm, refuse from the mines. Much less destructive have been the quarries of which there are comparatively few.

Obviously, the old Indian sites once dotting the shores of the Susquehanna have fared illy at the hands of these various agents of destruction. As a matter of fact, most of them have been all but wiped out, for apart from the disturbances due to mining operations, these localities, so interesting to the antiquarian, have in large measure been used as building lots. Further, the construction of roads and railways together with the filling in and leveling down of many spots, have contributed each and all, toward effacing what was left of the Redman's camping grounds. Fortunately, the exact whereabouts of most of the ancient village sites and many smaller camps in the valley are well known both from old maps and authentic records handed down from the first colonists, who actually saw these places, and some others may be identified to-day by means of the familiar telltale marks yet extant.

Strange as it may seem, the forces of Nature, ceaselessly busy in remodelling the physiography or face of the earth, have been far less destructive in the valley than the activities of the white man. The tools, with which she works, heat and frost, wind, rain and running water, are sufficient finally to wear down mountains, but her processes are slow and seldom of a violent character. Here, in Wyoming Valley, the river, during freshets, has made heavy inroads upon the old camp sites, often situated along the very edge of the banks. Washouts having been frequent, great patches of earth containing relics were torn away. It is at such times that the river looks very muddy, thus justifying its name, which, according to Heckewelder, is a synthesis of "assisku" mud and "hanna" river. Again, after severe rainstorms the river sometimes rises to such an extent as to overflow its banks for great distances. Whenever this happens, much sand or silt is deposited over the bottom lands, tending to cover up every vestige of the former camping grounds, situated within the zone of overflow.

Such being the conditions along the valley, it must be patent that the time for a genuine archaeological study of its limited domain is forever gone. Under these circumstances the author deemed it advisable to concentrate his attention upon the mountainous area north and south of the valley, an area as yet little affected by the works of man and hence presenting an aspect but little different from what it was at the time of the Redman. This, of course, meant the locating and exploring of rock shelters.

ROCK SHELTERS IN GENERAL.

The fact of the existence of rock shelters in the mountains environing Wilkes-Barré had long been recognized. They were known to be scattered throughout this rugged area and from time to time hunters and woodsmen, familiar with all its parts, had reported the finding of earthen pots, more or less perfect and of undoubted Indian manufacture, hidden away under shelving ledges. As, presumably, none of these sites had ever been excavated, there was reason to think that they had remained in very much the same condition as prevailed at the time of the Redman's final departure.

It was, therefore, with every prospect of success that I entered upon the task of rediscovering these interesting localities. For, be it remarked, I possessed no information whatever concerning their exact whereabouts and, as a consequence, I was left to my own resources, guided, though I was, by many years' experience.

As previously stated, I was busy for a period of fifteen weeks, in 1923, during which time I managed to cover no less than one hundred and fifty square miles of territory, searching some sections very thoroughly and others less so. My labors were not at once attended with success, for more than a week passed ere I located my first rockhouse. By the end of the season I had found altogether nine sites, all but one situated within a radius of eight miles of Wilkes-Barré.

Needless to say, my quest after these ancient rock abodes called for considerable physical exertion, involving much hill climbing struggling through thickets and swamps, away from the beaten track, and often under a broiling sun. Enthralled, however, by that fascination for the subject which seems bound to overcome all difficulties, no expenditure of time and work was deemed too great so long as by such efforts some tangible results were to be obtained.

Before discussing in detail each of the nine rock stations just referred to, it will serve our purpose first to present, by way of introduction, a synopsis or summary of all the important features characterizing places of this description.

As a rule, the American aborigines pitched their wigwams or tepees in the level country, near some water course, lake or in the vicinity of a swamp, and, where it was mountainous, in the valleys. The remnants of their primitive industry, scattered broadcast over all the country, indicate plainly enough the exact localities they once frequented. Still, there is abundant evidence to show that often they sought the higher altitudes, camping under rock shelters and in caves, high upon the mountainside.

The relation of the North-American Indian to places of this type was wholly utilitarian, as is still the case with primitive peoples the world over, that is, he utilized them because of the natural protection they afforded him, temporarily at least, from the rigors of the elements. For although he was not a cave dweller and had, as a matter of fact, acquired some skill in the construction of his habitations, he was by no means averse to sojourn for a while in the shelter of some rock, Nature's ready-made retreat, provided that certain conditions be fulfilled, of which I shall speak later.

While in the western states aboriginal rock houses have long ago engaged the attention of archaeologists, in the east it is only within recent years that such rocks have at all been investigated systematically. Beginning my studies in the year 1899, I have discovered no fewer than one hundred and sixty-two of these interesting sites, distributed over an area of approximately 6,000 square miles. Owing to the Indian's former presence under these rocks, each of them yielded remains of his handiwork or other refuse attributable to him, often in great abundance and of such a nature as to throw much light upon his mode of life, while camping under their hospitable roof.

Contrary to what might have been expected, all these primitive abiding places had evidently remained undisturbed since aboriginal times, save in a few cases, where some modern rubbish was found on the surface, left behind, no doubt, by hunters and timbermen. Consequently, the culture débris, accumulated under the rocks, was nearly always intact or in its original condition and all the archaeological objects embedded therein, were lying in situ, viz., in the very place where they had been dropped.

The fact that this class of sites had wholly escaped the attention of curio hunters who, it would seem, never suspected their true significance, could not but be gratifying to the investigator whose aim is not merely the collecting of relics but rather the gleaning of such information as may be legitimately derived both from the assemblage of artifacts and their relative position in the subsoil. If correctly interpreted, the data, thus observed, may, indeed, serve to make clear many a problem involved in the study of the American Indian.

It goes without saying that rock shelters can occur only in mountainous regions or wherever the landscape is rugged, broken into ledges and cliffs and wild rock formation. Here the redskin would find his natural shelters, be they clefts in the crags, overhanging ledges or holes under large boulders and piled up masses of rocks.

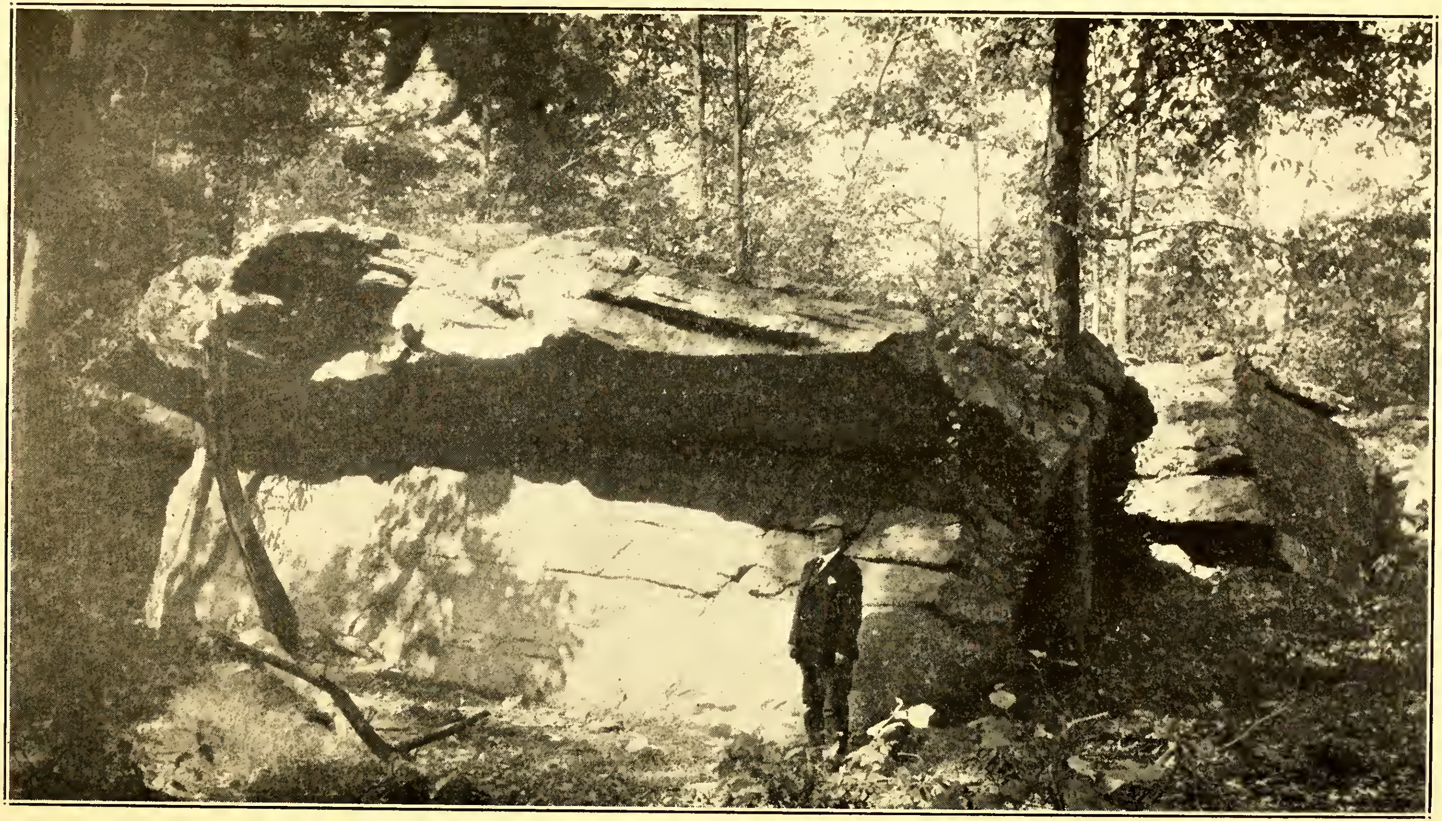
As for their distribution, I found them in the territory extending southward from the Catskills in New York State to a line across New Jersey, from Lambertville, on Delaware River, to Perth Amboy, on Raritan Bay, a tract bounded on the west by the Delaware and on the east by Hudson River, thus embracing a large portion of southeastern New York and all of Northern Jersey. A few additional ones were located in Sullivan County, N. Y., in Pike County, Penn., and in the valley of the Lehigh, north of White Haven, in the counties of Luzerne and Carbon.

If in a river valley, sites of this kind were apparently in great demand, and this for obvious reasons. For as they lay along the more important prehistoric routes of travel, which commonly followed the river courses, they could not only be easily approached, but the proximity of a stream, often well stocked with fish, was bound to make them desirable for habitation, since fish was largely depended upon for food, it forming a large part of the Indian's diet. Nor does it appear that the aborigine was at all fastidious, when about to make use of a covert thus situated, as he would not infrequently avail himself of one that was quite small, provided, of course, that he did not have much choice.

It is clear, therefore, that easy access or favorable situation was a factor of some weight with the savage in influencing his selection of a natural shelter, however mean. On the other hand, there is many a rockhouse, perfect in configuration and affording protection from boreal blasts, which has never been inhabited by the Indian, if we may judge from the total absence of all traces of former occupation and this seemingly for no other reason than its remoteness from the beaten path or else, perhaps, on account of the propinquity of other shelters that, for some cause or other, were more to his liking. And in cases like this he generally evinced, it seems, a considerable degree of native shewdness choosing, doubtless, one which was in every sense best suited for his purpose.

Conversely, some apparently inferior shelters have been in great demand. In trying to account for this ostensible discrepancy, we may discover that apart from mere remoteness there were other reasons detracting from the value of a shelter. In the first place, a shelter, to be desirable, had to have a water supply in its immediate vicinity, such as was derived from a lake, a brook or a spring. This being too far off, the comfort-loving Redman would pass it by. Again, it appears that he preferred haunts with a more or less southern exposure, where the genial warmth of the sun's rays could be felt the greater part of the day. And, to be sure, I know of several rockhouses almost within reach of water which had been avoided apparently for no other reason than that they opened northward. What better illustration could there be of the phenomenon of heliotropism observed throughout all animate Nature!

Inasmuch as our Indians were gregarious animals, albeit in a lesser degree than ourselves, preferring to live together



WHITEHOUSE SHELTER NON-ARCHAEOLOGIC

in their villages on the plains and in the valleys, it is highly probable that they used most of these rock haunts only as temporary stopping places, to which they would repair for the sake of convenience when hunting through the mountains in order to feast and rest from the fatigue of the chase.

At certain seasons, but most generally in autumn, neighboring tribes would join in hunting trips to the mountains, which were a kind of game preserve, occasionally held in common by a group of tribes, where they would stalk the deer and secure other quarry, valued for food and peltry. With nothing escaping their keen senses, they could not fail to acquire a thorough familiarity with those rugged regions that at their time were all but impenetrable, a pathless wilderness, the home, moreover, of panther and bear. Hence, they came to know the runways of deer, the lairs of wild beasts, also where to find water and where to camp after the chase.

In such solitudes, far away from their villages in the valleys, it was but natural that they should avail themselves of some of the sheltering arches of rock that are of such common occurrence in many of our mountains. Thus it was that they would resort to rock shelters, the whereabouts of which they well knew.

In making their choice, as already stated, they did not proceed indiscriminately, but selected those that complied best with their requirements. Aside from water being conveniently near, the character of the roof and floor were factors determining the desirability of a site. If the former did not jut out far enough, say, less than four feet, or if it was so low as to compel crouching, the covert was likely to be avoided. As a rule, the most favored sites were those having the most extensive roof projection. In some cases this amounted to as much as twenty-five feet, while in archaeologically inferior shelters it dwindled down to about four feet.

Further, those sites were given preference that had a dirt floor, quite level and not mixed with too many stones. A plain rock floor or one obstructed by protuberant boulders, buried deeply in the subsoil, would, it appears, constitute a serious drawback to prospective occupation.

As many of these stations were in the wildest and most inaccessible sections of the country, we may presume that only the able-bodied huntsman would go and camp there, the old men, squaws and papoose staying behind in the settlements. The difficulties attending a march through the trackless wilds with their ferocious beasts and tangled growths account, moreover, for the fact that no pottery was found in those rock shelters which were hardest to reach, while those of easy access invariably contained pottery fragments—no whole pots were found—lying either on the surface or a little below. It is quite possible that some of these shelters, at least those which were favorably situated, may have been occupied by whole families for months at a time, and this, maybe, during the winter seasons.

The occurrence of pottery under rocks seems to bespeak the presence of females in so far as there is good ground for believing that the transportation of pottery vessels and other household utensils was relegated entirely to the women, the grown-up males and warriors usually considering it beneath their dignity to encumber themselves with anything but their bows and arrows and the proceeds of the hunt. Should this assumption be correct, the finding of the remains of earthenware at these sites, combined with the total absence of any other articles of prehistoric origin, even of chips, would have to be interpreted as indicating female occupation to the complete exclusion of the other sex. A number of such places, designated as squaw shelters have come to my notice and it is surmised that they were used exclusively by women in accordance with certain customs and rules observed by primitive peoples from time out of mind.

Wherever man dwells, he will leave traces behind as a testimony to his former presence. If scrutinized, these mute witnesses of days gone by may be made to furnish much information of archaeological moment. They will tell us something about his mode of life and the degree of skill he had attained in fashioning his tools. However, each rock abode presents features of its own, based on the character of the finds made. The well nigh ubiquitous arrow point is met with in nearly all of them. Scrapers and chips, too, often in great abundance, are of common occurrence, a fact showing plainly that the ancient occupants of these rocks devoted much of the time spent there to replenishing their stock of utensils and weapons.

Again, some shelters are remarkable for the profusion of bones scattered throughout the débris and where they occur there are usually many indications of ancient fires, such as hearth stones, fire-cracked pebbles and smoke-stained rocks. The bones belong to many kinds of animals once hunted by the Redman, with those of the deer predominating, as he was partial to venison. In addition, there are the bones of bear, beaver, opossum, rabbit, woodchuck, muskrat and wild turkey along with many others, some of the creatures mentioned now being extinct in these parts. Manifestly, an abundance of bones in any one of these localities denotes that there the hunter was wont to feast on the spoils of the chase. Almost invariably the bones are cracked for the marrow and many show traces of having been in contact with fire.

It does seem strange that not a single tomahawk or hatchet was discovered in any of the shelters thus far explored. On the other hand, some comparatively rare artifacts, namely, a gorget perforated at both ends, pitted handhammers, used for cracking nuts and also as heat stones, and several bannerstones were obtained. Netsinkers were not infrequent in shelters situated near the bank of streams or lakes.

While most of the prehistoric objects are found buried in the subsoil covering the floor of the covert and distributed through it all the way down to rock bottom, sometimes to a depth of four feet, it is well to examine closely the surface before disturbing the layers, as chips and other products of

Indian workmanship are not infrequently met with, lying on top of the accumulated débris and often plainly exposed to view.

If we try to picture to ourselves the conditions of this region at the time "when wild through woods the noble savage ran," a region covered with jungles or primeval forests, choked with windfalls and an all but impenetrable growth of luxuriant underbrush, reaching in one vast expanse from the Atlantic to the great plains, with mountain fastnesses, trackless and impassable, save for a few narrow trails, used by man and beast alike, we may well wonder how the aborigine could move about as freely as he did, how he managed to penetrate to certain sections that, even now, are wellnigh inaccessible. Yet to him nothing was inaccessible; he visited every point, knew every landmark, every rock and left his mark, however obscure, wheresoever he went. Consequently, his traces are dug up under rock shelters that are even at the present time quite difficult of approach, lying, as they do, in the heart of the mountains, many miles from the river valleys and the nearest human habitations, either his own, that are no more, or those of the Whites.

Inquiring into the ethnic relations of those who anciently occupied the rock stations occurring in this wide tract of country, they were, most of them, of Algonkin stock or Lenâpé, for according to Heckewelder, one of our best authorities, the settlements of the Lenâpé extended from the Mohicannituck (Hudson River) to beyond the Potomac; and from the headquarters of the great rivers Susquehanna and Delaware to the Atlantic ocean. Yet it is questionable whether all the sites within this region had been tenanted by the Munsee alone, i. e., the northernmost of the three divisions of the Lenni Lenâpé or whether the Unami, adjoining them southward, frequented some of them, that is, those which lie in New Jersey, south of the Ramapo mountains.

If we follow Heckewelder's lead, all the sites here treated of were once resorted to by the Munsee only, for he says that they extended their settlements from the Minisink a place named after them, where they had their council-seat and fire, quite up to the Hudson on the east, and to the west or southwest far beyond the Susquehanna. According to this, the rock stations lying along the Lehigh near White Haven, as well as those north and south of Wyoming Valley, were well within the Lenâpé area, an area, it is true, belonging to the Iroquois by right of conquest, with its inhabitants under tribute to that confederacy. I shall now proceed to a discussion of the nine prehistoric rock stations, found in 1923, in the vicinity of Wyoming Valley, describing each of them and setting forth in detail the results obtained from their investigation.

ROCK SHELTERS IN AND NEAR WYOMING VALLEY.

It was in the hills north of that part of Wyoming Valley which stretches between Kingston and West Pittston that I began my search for rock shelters. This search which came to cover an area of some two hundred and fifty square miles, included all of Wyoming Valley proper as well as the hills to the north and south, the river valley between West Nanticoke and Nescopeck, the region about Lake Nuangola, a small section along the Lehigh, near Stoddartsville, and the district in the vicinity of the confluence of Bowman's Creek and the Susquehanna, opposite Tunkhannock.

The hills north of Wyoming Valley range between 1500 and 1600 feet above sea level and are trenched deeply by no less than three gaps. The most westerly one, running from Luzerne to Dallas, is watered by Toby's Creek, that between Wyoming and Carverton by Abraham's Creek and the easternmost by a tributary of the latter.

All this territory looked quite promising by reason of the numerous ledges, often rising abruptly from the banks of the stream. At the start, I examined with care the elevated tract of land, composed of undulating hills and high-level valleys, lying directly north of the first ridge of mountains between

Trucksville, on the southwest, and the Susquehanna, opposite Campbell's Ledge, on the northeast, reserving the hillsides sloping down to Wyoming Valley for the end of the season.

After a week's strenuous search I succeeded in locating within this district the first prehistoric rock station, i. e., such as afforded unmistakable evidence of the Redman's quondam presence. To be precise, I found two of these places on this occasion, both lying along the foot of the same rock outcrop, some 150 meters apart.

The neighborhood, at which they occur, is known as Carverton, a hamlet of widely scattered farms amid rolling hills and small streams. They are four miles distant from Wyoming and may be reached by following the uphill road along Abraham's Creek, always keeping to the left as far as the old Saks homestead. Crossing Abraham's Creek at this spot and turning north through the fields and woods for a short distance, one cannot fail to find these old Indian haunts, nestling cavern-like at the westward-facing base of the Pocono sandstone crags. Consulting a topographic map of this section, the rocks will be seen to lie just about four miles directly due north of Luzerne.

As Carverton and surroundings are replete with interest to the student of local history, it may not be inappropriate to call attention to a few stray facts told by some of the natives. As early as 1778 or, at any rate, soon after the Wyoming massacre, the first white settlers appeared in this neighborhood, then a howling wilderness. Among them was the Sachs family, a name subsequently anglicized into Sax or Saks, descendants of whom are still living hereabouts.

They secured from the Redman a large parcel of land, the price stipulated being a pig and a gun, and built a rude log-house, a combination of dwelling and grist mill. The original house stood, it seems, at the site of the present frame building, on the north bank of Abraham's Creek and about a quarter of a mile south of the two rock shelters. Tradition has it that when they first arrived here, they noted a beaver dam across the creek, with the water back of it forming quite a pond. An old Indian trail also is said to have crossed the mountains to the south and to this I shall refer again in greater detail. Further, small camps or lodge sites were once apparently situated here and there on the banks of the creek, as revealed by the finding, in days gone by, of various types of objects, attributable to the Indian.

As already remarked, the shelters are along the base of the jagged ledges, which form the western margin of a rocky hill, 1200 feet in height. Abraham's Creek, flowing from the northwest, sweeps half way around the western side of this hill, almost doubling upon itself, and within less than 200 meters of the shelters, thus affording plenty of water to those anciently using them, to say nothing of a fine spring rising in the low ground along its borders.

Both shelters are on land belonging to William Jacobs, an old-time resident, and they differ much in size and shape, the northerly or upper one being considerably larger and superior structurally. Ever since the white man came hither, the latter has been known as the Indian Cabin, for there is a tale, handed down from generation to generation, to the

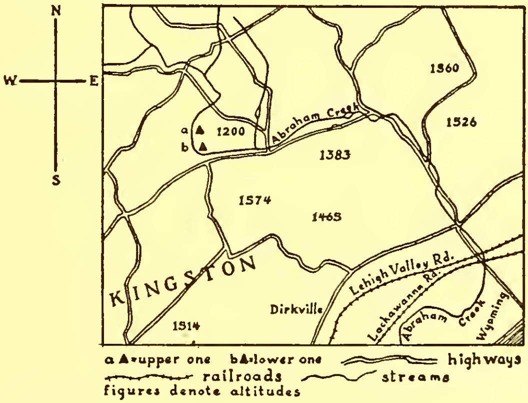


Chart showing exact site of Indian rock cabins on William Jacobs' farm, Carverton, Kingston Township. Scale—½ inch to a mile.

effect that the aborigines were actually seen camping under its roof. Furthermore, there is a local tradition that Frances Slocum, having been kidnapped, stayed here overnight with her three captors, bound for the Indian towns farther north. Conflicting with this story is the report, usually accepted, that she was taken the night following her abduction to a cave on Laurel Run. As this was due east of Wilkes-Barre, such a route would not have been the most direct to the Indian country, whereas the northerly one over the mountains by way of Carverton would have been much shorter.

THE UPPER CABIN.

The upper or Indian Cabin lies at the foot of a high irregular rock outcrop, facing northwesterly. Its roof is about fourteen feet above the floor, impending no less than ten feet. The sheltered space is some twenty feet long with a large oblong block of rock, fifteen feet long by three feet high, extending parallel to the rear wall, some seven feet from it. A configuration such as this could not but give rise to an uncommonly good covert and as, moreover, the floor underneath consisted of sand mixed with small rocks, entirely unobstructed by protruding boulders, there appeared to be every promise of a rich archaeological harvest being gathered at this spot. In this, however, I was to be disappointed, for

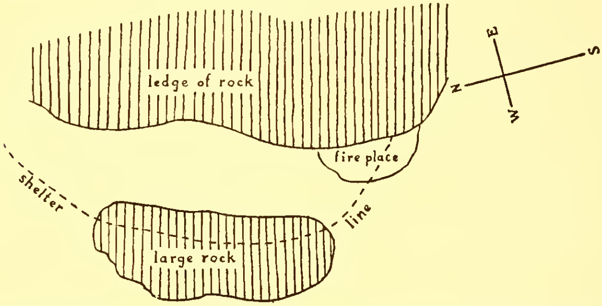
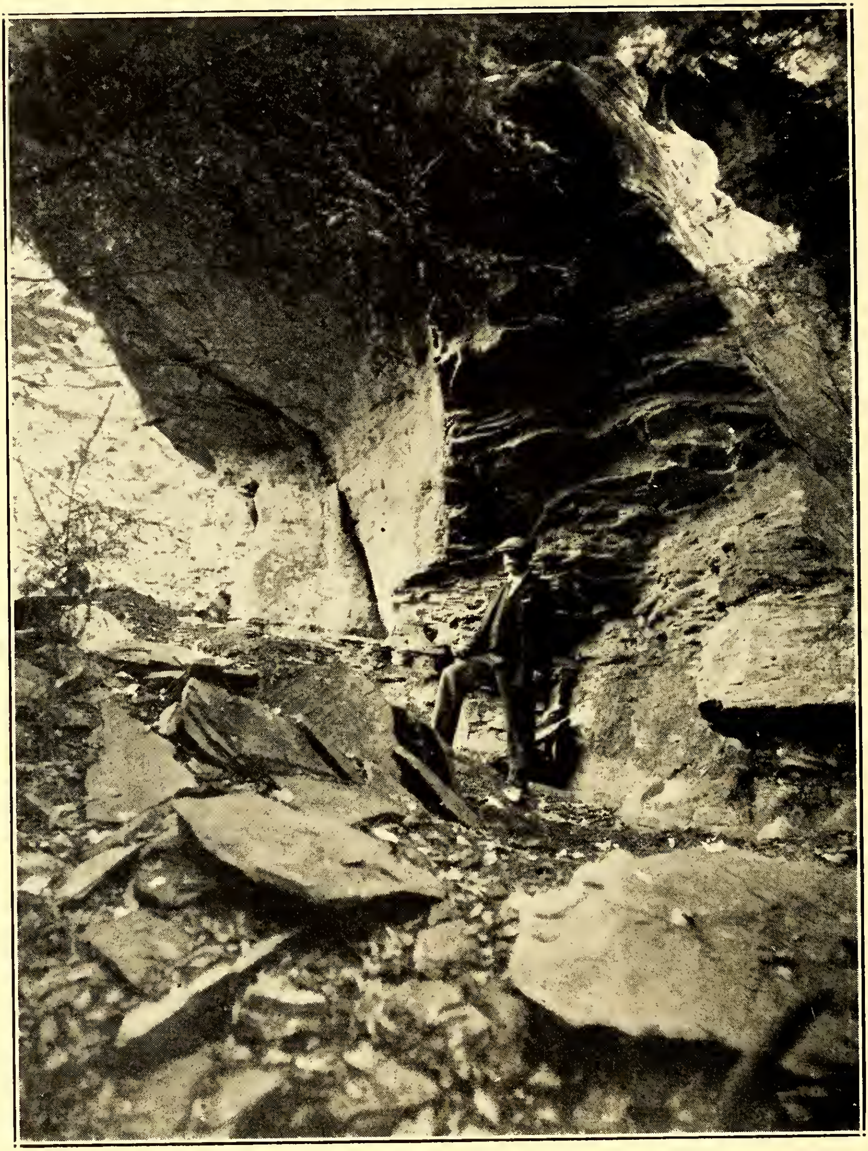


Diagram of upper rock cabin. It opens towards the west, with a sheltered space some 20 feet long, an overhang of about 10 feet and with the roof about 14 feet above the floor.



SHELTER (upper one) ON ABRAHAM'S CREEK, CARVERTON
Known as Indian Rock Cabin; supposedly the place where Frances Slocum was kept overnight.

the examination of the soil under the rock yielded very few remains traceable to the Redman.

At the extreme right of the place, partly beyond the shelter line, there were the well known indications of an ancient fireplace, as usual marked by black soil, here penetrating to a depth of about five inches. Embedded therein was a quantity of bones of various animals such as deer vertebra, two deer jaws with molars in place, these lying under some humus near the surface, other deer bones, the jaw of a skunk, fragments of bird bones, not identified, a large molar probably belonging to an elk, and a few fresh water mussels of the species called unio companatus Sol., together with chips of flint and chert.

Continuing the excavation toward the centre of the covert, some sections of the subsoil, from three to six inches beneath the top layer, looked darker than the surrounding yellow gravel. This was especially the case near the inner edge of the oblong mass of rock, above mentioned, and here sundry remains came to light among them being pieces of the carapace of a box turtle, two small potsherds, decorated with parallel lines, chunks of raw material, of flint, several flint chips, the base of a triangular arrow point and the fragment of a spearhead, both of flint. Digging to a depth of nearly three feet was attended with negative results in the strata more than a foot below the surface and the left-hand portion of the shelter was not explored, it being too rocky.

Such, then, was the culture débris recovered under the Indian Cabin. Although a splendid covert structurally, it does not appear to have been much frequented. The evidence, such as it is, indicates that the cabin was resorted to occasionally by some copper-colored hunters, who here built a fire and cooked the food secured on the chase. Further, the finding of pottery pieces would seem to hint at the presence of a squaw accompanying her escort.

It is not altogether improbable that the cabin had already been excavated by relic hunters, but if so, it was not only many years ago but the dirt must have been thrown back into place. As there were, however, no sure signs of such diggings, the conclusion arrived at regarding its comparative insignificance may remain valid.

THE LOWER CABIN.

Turning our attention to the second and much smaller cabin lower down the creek, it proved to be considerably richer in prehistoric remains than the former. It has a western exposure, a maximum roof projection of nine feet, some eight feet above the floor along the shelter line but slanting down to five and a half feet in the rear, and the total length of the sheltered space is about eighteen feet.

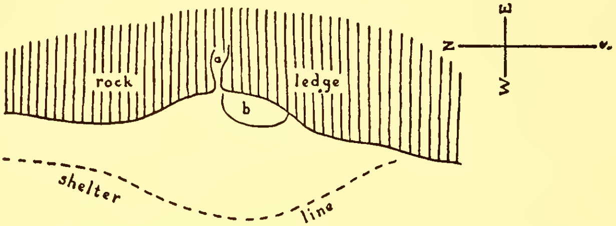
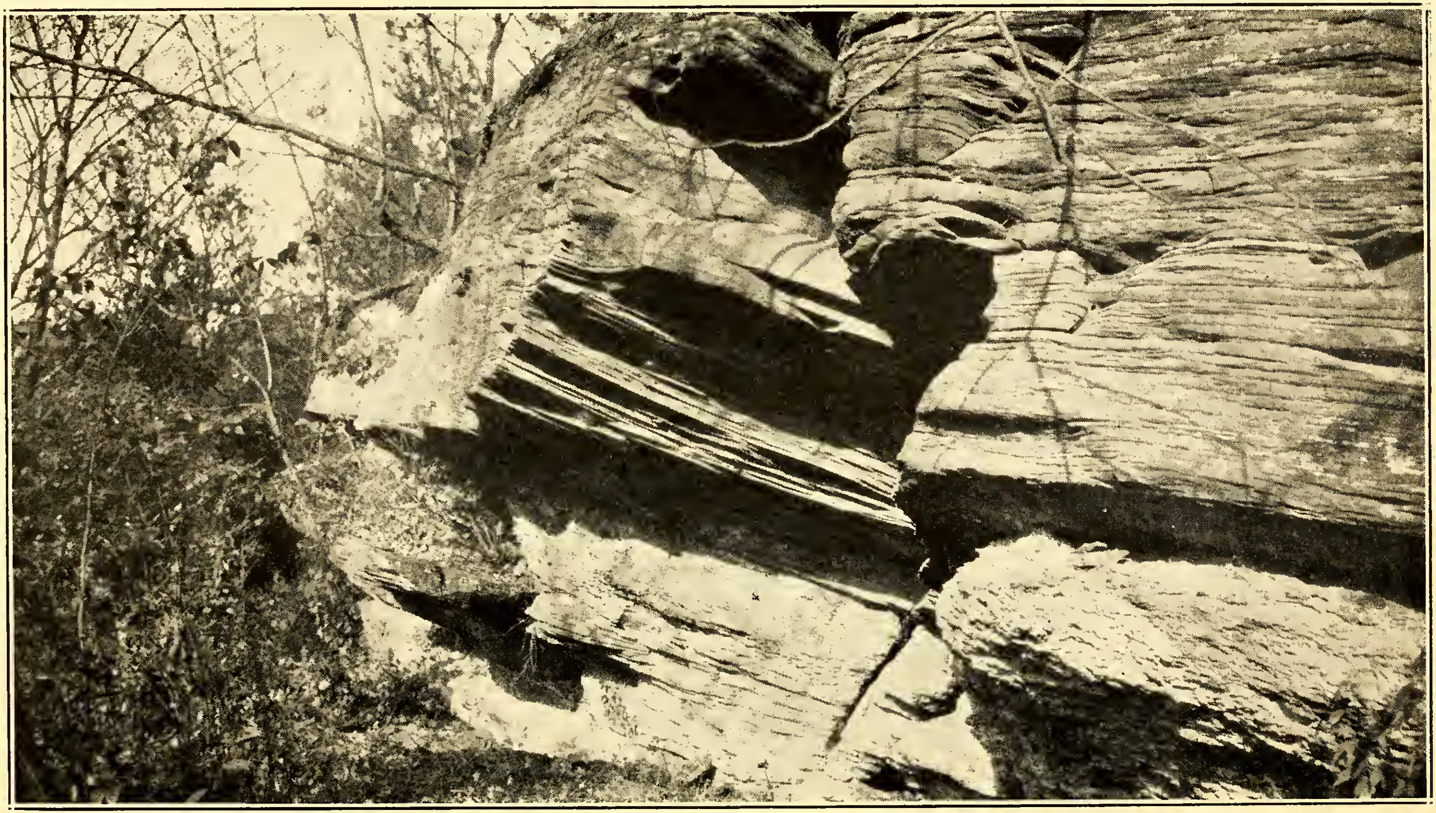


Diagram of lower rock cabin. It faces west. Roof 8 feet above floor along shelter line and 5, 6 feet in rear. Maximum projection 9 feet. Length of shelter some 18 feet. Both sites are in Pocono sandstone. a, fissure in the rock; b, probable site of ancient hearth.

In the centre of the rear wall, opposite the point where the roof juts out farthest, there is a fissure or narrow cleft, entering deeply into the rock. The space in front, near its opening, yielded half a dozen netsinkers, all of them superficially buried. Three more sinkers came to view in the débris to the right along the wall and this spot, containing dark soil mixed with ancient charcoal, may well have been the site of a hearth. The sinkers were merely flat pebbles, water worn and such as might have been obtained in any quantity along the brook nearby. They were oval in outline and notched medially on opposite sides.

The area covered by the hearth measured about four feet by two and it yielded most of the score of potsherds here



CARVERTON SHELTER ON ABRAHAM'S CREEK (lower one) buried under the rock. These sherds were nearly all of them cord-marked, that is, showing the imprint of a net or other rude textile, stamped on the clay while it was still soft. Yet among them there was a tiny piece of a pot rim, embellished with parallel lines and another piece of a rim, projecting or flaring, ornamented with oblique lines both inside and out. Associated with all this were deer and bird bones, flakes of gray chert, a small triangular point, of smoky quartz, a small notched point, an inch long, of chert, and the base of a point, also of chert.

Digging into the layers of gravel to the left of the fissure revealed a quantity of unio shells, all lying in a heap and badly fractured. The remainder of the covert near the line of shelter was practically devoid of prehistoric objects. Nor did it seem necessary to excavate to a depth of more than twelve inches since all signs ceased below the six-inch level, excepting the space occupied by the fireplace, where I dug to a depth exceeding fifteen inches and that with good results.

Considering the evidence offered by this shelter, it tells a similar tale of some roving redskin wandering hither to build a fire, cook his meal and fashion a stone implement or two. Apparently, he, too, took his spouse along as betokened by the presence of pottery fragments under the rock.

Both these places were seldom visited, if we may judge from the scant remains left behind. They were stations of little significance, giving no proof of a prolonged or oft-repeated occupancy. And because of this paucity in culture specimens, alike in quantity and variety, nothing positive may be said anent the tribal affiliations of those who camped here. In so far, however, as this culture seems to be identical with that of New Jersey, we may hazard a guess that they were of Algonkin stock, and, as such, members of the Munsee clan.

CAMPBELL'S LEDGE AND ENVIRONS.

We shall now descend to the banks of the Susquehanna and visit the region above the upper end of Wyoming Valley, north of Pittston. Just before passing into the valley, the river winds in its course between high, wooded hills that closely approach its shores, presenting their steeper slopes riverward. Viewing the scenery from the south, the eye is at once arrested by the massive bulk of Campbell's Ledge, looming on the eastern bank in splendid isolation. And, indeed, being somewhat detached from the mountains back of it, this rugged eminence impresses one as a striking feature of the landscape, a great landmark, dominating the entrance to the valley and visible for many miles in certain directions.

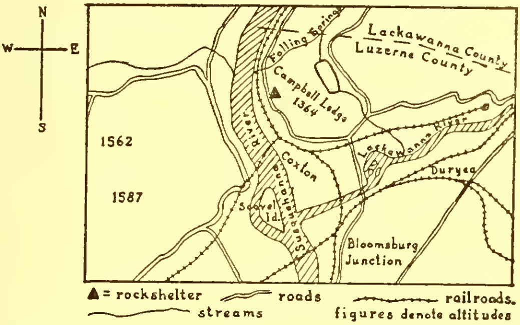
Its talus-strewn westerly base is surmounted by sheer unscalable rock walls, rising to a height of 1364 feet above the sea, and from its summit a magnificent panorama of hills and dales greets the beholder, with the Susquehanna gliding majestically along its foot and passing out of sight far down the valley. Doubtless, the aborigines had a distinctive name for this mountain, even as they had for every other prominent topographic feature, a name lost with them and one never to be rescued from oblivion.

Apart from its general loveliness, the region under review is remarkable for its prehistoric associations. Instinct with the spirit of romance, it was, no doubt, the theatre of many an event, weighty with meaning to the simple redskins but unrecorded in any annals. South of the Ledge, on the broad flats, north of where the Lackawanna debouches into the Susquehanna, there was anciently an Indian settlement and scattered lodges dotted the banks of the two streams, for angling here proved tempting and the Redman was a born piscator. To-day, romance has departed and in its stead there is the white man's civilization, humdrum and prosy, here fitly typfied by extensive railroad yards known as Coxton.

At the northern extremity of the Coxton yards, between them and the lower slopes of the mountain, there is an out-

FALLING SPRINGS

lying ledge of sandstone close by the Ransom road and parallel to it. This ledge rises gradually to where Falling Springs brook or what is left of it makes its wild leap, and finally merges into the solid framework of beetling cliffs and precipitous rock formations which for more than a mile constitute the westerly face of the mountain.



Map giving site of Coxton rock shelter at westerly base of Campbell's Ledge.

Along the lower section of this ledge there are several cave-like structures affording protection from the elements. One of these gave ample testimony to the Indian's erstwhile presence under its roof.

THE CAMPBELL'S LEDGE HAUNT.

In contrast with most other prehistoric rock abodes this place may be reached without the slightest inconvenience and it is easily found lying, as it does, a few feet east of the

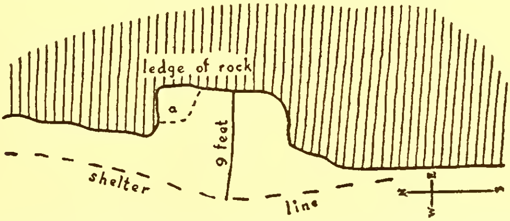


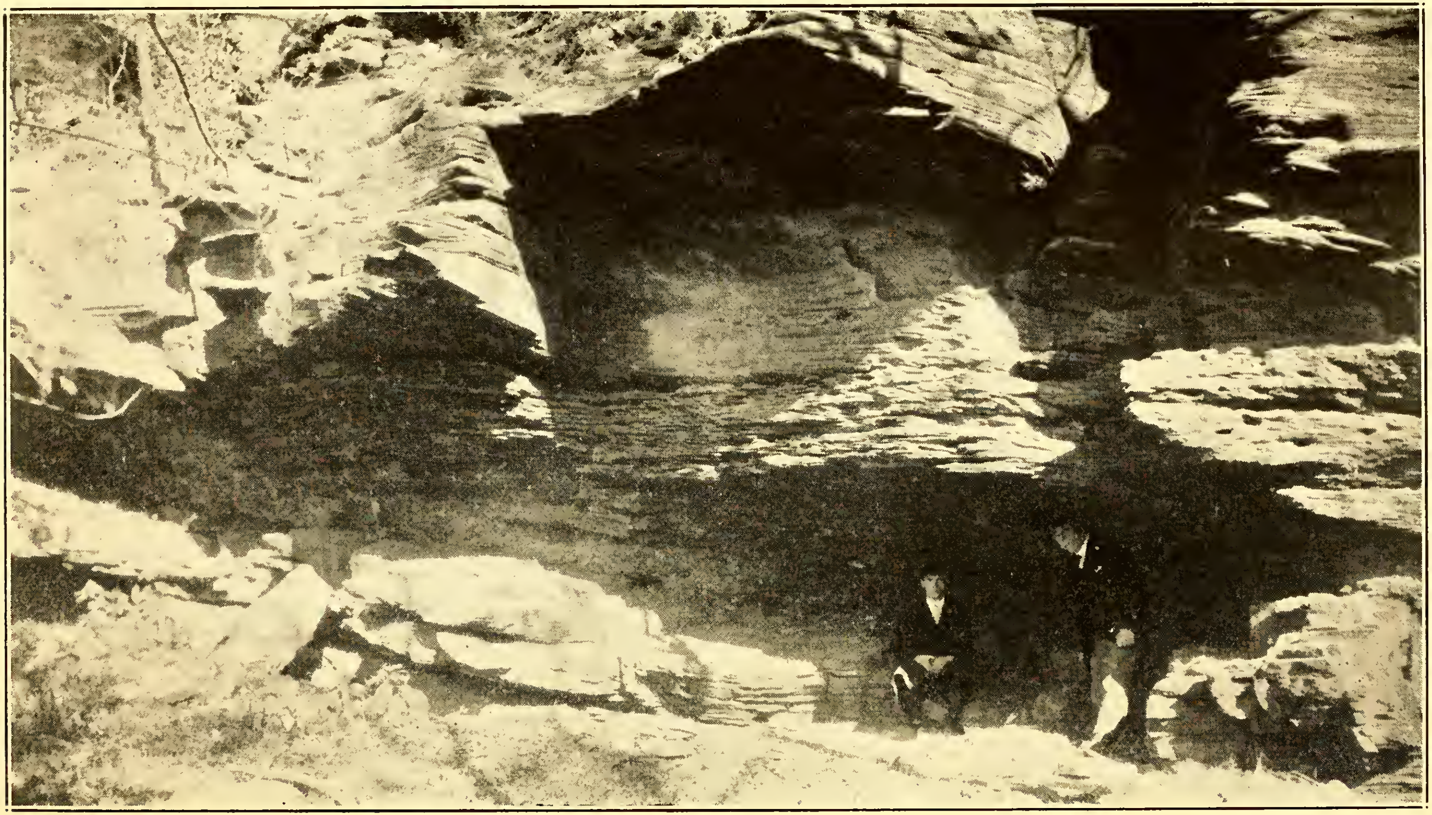
Diagram of Coxton or Campbell's Ledge shelter. It faces west. Greatest overhang 9 feet. Length of sheltered space some 18 feet. Roof about 10 feet above floor on the outside and 7 feet in the back. a, marks a fireplace.

Coxton-Ransom road. Its main feature is that of a natural niche, square in shape and cutting deeply into the face of the ledge which at this point is hardly fifteen feet high. Owing to the trend of the latter, being north and south, its exposure is due west. The roof, projecting beyond the niche, shows an overhang of approximately nine feet, being about ten feet above the floor on the outside and seven feet in the back, while the total length of the sheltered space, including the portion to the right and left of the niche, amounts to some eighteen feet.

As is usual with places of this kind, whenever they chance to lie near highways or human habitations, the floor of the shelter was seen to be covered with modern refuse like nails, pieces of iron and broken bottles. These removed, a trench was dug through the left-hand portion of the niche at right angles to the rear wall. This particular spot, covering less than one-half of the niche, turned out to be the richest in archaeological material, yielding the bulk of all that was found.

The deposit here forming the floor consisted of soft black soil with a sprinkling of rocks, and the presence of charcoal and heat-cracked pebbles, scattered through the dirt to a depth of about two feet, revealed plainly enough that it was the site of the Redman's fireplace. At the same time no smoke stains, such as might be referred to ancient fires, were noted on the walls.

The first objects turned up by the trowel were several small pottery fragments, cord-marked, about three inches below the surface. Farther down, some forty small sherds came to light, all of them showing cord-markings. Together with these, a varied assortment of Indian refuse was distributed through the débris to a depth of about two feet, to-wit, part of a deer's antler, displaying traces of whittling, a quantity of deer bones, many of them charred, fragments of fresh water mussels, probably unio fluviatilis, chips of



INDIAN SHELTER AT WESTERN BASE OF CAMPBELL'S LEDGE, COXTON

flint and chert. A portion of a straight-stem point, of flint, and many egg-shaped pebbles, possibly used as heatstones.

Quite significant was the fact that most of the pottery pieces occurred in the upper layers of the débris and most of the bones in the lower, a foot or two beneath the surface, while the chips appeared to be evenly distributed throughout all the levels. Whether or not certain inferences can be drawn from a distribution such as this may be an open question. At first blush and under certain conditions, the occurrence of potsherds in the upper strata only would seem to hint at a relatively late introduction of the art of pottery-making, provided, of course, that an observed fact like this be not restricted to a few places but found to apply to all of them or, to be more exact, to such as had been in use, though intermittently, for centuries, in which case there would have taken place an accumulation of various culture layers exhibiting some sort of progressive development.

And, in truth, the rock shelter work both of Mr. M. R. Harrington and myself appears to give some countenance to the hypothesis that the Indians of the Atlantic seaboard became but recently acquainted with the ceramic art, for the fact that pottery remains in many of the important rock stations, i. e., such as seemed to bear testimony to a succession of culture layers, was almost invariably confined to the superficial strata, tends to support such an hypothesis.

As regards the shelter under consideration, however, we must not attach any undue significance to the peculiar mode of distribution of its pottery content for the simple reason that this particular station was obviously of small importance, archaelogically speaking, in that it offers no proof of an ancient or prolonged occupation such as might reveal a succession of cultures, separated, maybe, by a neutral zone barren of relics or else blending the one into the other by imperceptible stages.

In the right-hand section of the niche the soil was found to be very compact and mixed with many rocks, yielding but slowly to the trowel. Unlike the fireplace area, the deposit forming the floor did not appear to have been materially disturbed, thus probably remaining in much the same condition as at the time of the Indian. Here, the archaeological harvest was almost nil, consisting of a few fractured deer bones and some chips occurring in the topmost layer.

Outside the niche, along the base of the cliff to the left, there was a patch of soft soil about ten inches thick and underlain by rock bottom. Here the trowel turned up some more chips together with three pottery fragments ornamented with fine dots, arranged in parallel lines, horizontal and oblique. Judging by the varying thickness and color displayed by the sherds, some forty in all, they probably represented the remains of no less than five jars.

From the evidence extant under this rock we may draw a few conclusions. In the first place, the paucity of the cultural remains, bespeaks, as already set forth, an infrequent occupation and then only for brief spaces of time. The bed of ashes and charcoal tells of fires, kindled for the purpose of keeping warm or preparing meals, and the refuse of these meals, being mostly cervine, suggests that the hunter came hither laden with venison. The chips attest the manufacture of arrow points and the pottery fragments, belonging to some five vessels give us a clue, however obscure, as to the culture of the former occupants of this haunt. Having examined them carefully, I doubt not but that they are of Algonkin type or, more precisely, Lenâpé.

The flat rocks bordering Falling Springs brook just before it takes its final plunge, a short distance from its mouth, show some scattered aboriginal vestiges in the shape of flint flakes. Being a fine coign of vantage, overlooking part of the river valley, the redskins were sure to visit this elevated rocky tract.

THE WHITEHOUSE DISTRICT.

In the following I shall discuss a section of the valley which proved of extraordinary interest for more than one reason. This is the Whitehouse neighborhood, a name now all but lost to the present generation and familiar only to old-timers. Within its precincts two rockhouses were found, but before dealing with them it may be advisable to give a short description of the district with especial emphasis upon its physical features.

Be it remarked at the outset that the locality under consideration is vague in its outlines or of indefinite extent, but from what I have been able to learn it is not extensive, covering less than half a square mile. Its principal portion lies two miles east of Parsons in a beeline, between the south branch of Mill Creek, named Spring Brook, on the north and Laurel Run on the south, and to the east rises Wilkes-Barré mountain or its northeasterly continuation, with the freight line of the Lehigh Valley railroad traversing its more elevated flanks.

Physiographically, it is a rough tract of land, intersected by gullies and rocky ridges, and withal well watered by streamlets, flowing either into Spring Brook or Laurel Run. In addition, swales and swampy patches fill the rock-girt depressions here and there. Viewing this region in its broader aspects, it is a large foothill of the higher elevations immediately to the east, a hill with two summits, the northerly one being 1120 feet high and the other one 1200. Its slopes fall away gradually toward Parsons and Miners Mills but somewhat more abruptly in the direction of Spring Brook and Laurel Run.

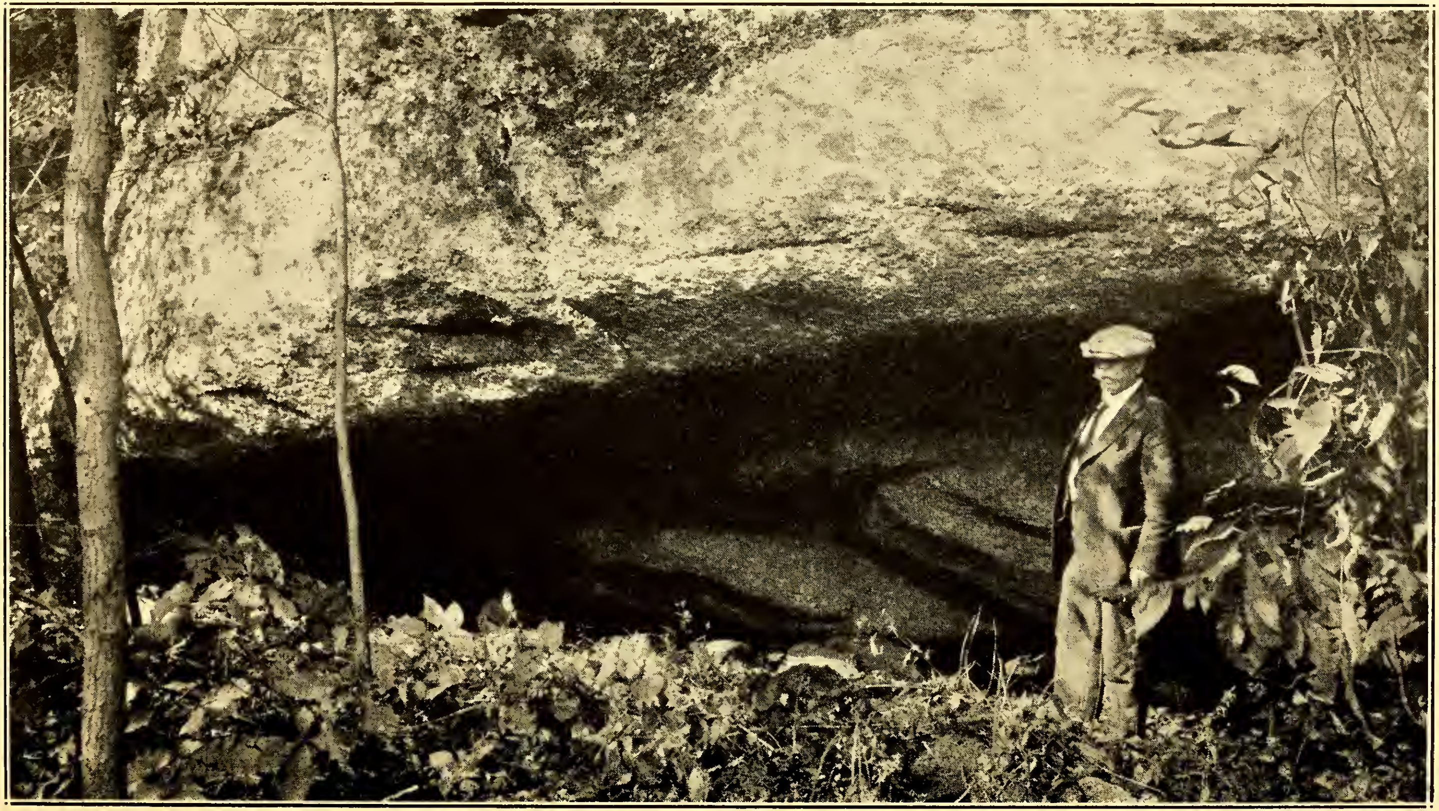
In this out-of-the-way place, where even to-day there is not a single habitation for a radius of more than a mile, several families are said to have settled many years ago, when it came to be known as Whitehouse. Not a vestige remains of the houses they built, but the old road, once known as the Old Plains road, giving access to this wilderness, is still in existence though very dilapidated in places. This road, now all but discarded, being too rough and hilly for modern traffic, has a history in that it was once a well trodden highway, running westerly to Parsons and southerly across Wyoming mountain down to Ten Mile Run, thence continuing in the direction of Bear Creek. Realizing that many of our older roads are merely improved Indian trails or, at any rate, paralleling roughly the course they once took, it would seem not at all improbable that the road in question was anciently a prehistoric path, seized upon by the early white settlers and subsequently widened to make it passable for their ox carts.

THE EASTERLY ROCK STATION.

When I first visited this section, I was at once impressed with its primitive wildness, its fantastically shaped ledges and rocky glens. The Pottsville conglomerates composing these rocks were broken and fissured into all sorts of shapes and their immaculately white surfaces were gleaming in the sunlight. On all sides were holes and clefts, some of them quite large, and the general aspect of the outcropping rock formations was such as to suggest the occurrence of natural rockhouses, good enough to have attracted the attention of the prowling redskin.

Struggling through a jumble of jagged cliffs, I caught sight of a huge isolated mass of this conglomerate, perched upon the bank of a small brook the altered course of Kelly Creek, which feeds the Deep Hollow reservoir, some two hundred meters away. At this juncture I must state that this section has not wholly escaped the modifying hand of man any more than the others, for farther down the brook a big dam has been constructed which, by impounding all the inflowing waters, has given rise to a reservoir, half a mile long. Yet the building of this basin did not materially, if at all affect the area under discussion and, save for the cutting of the original timber, it probably does not differ much to-day from what it was centuries ago.

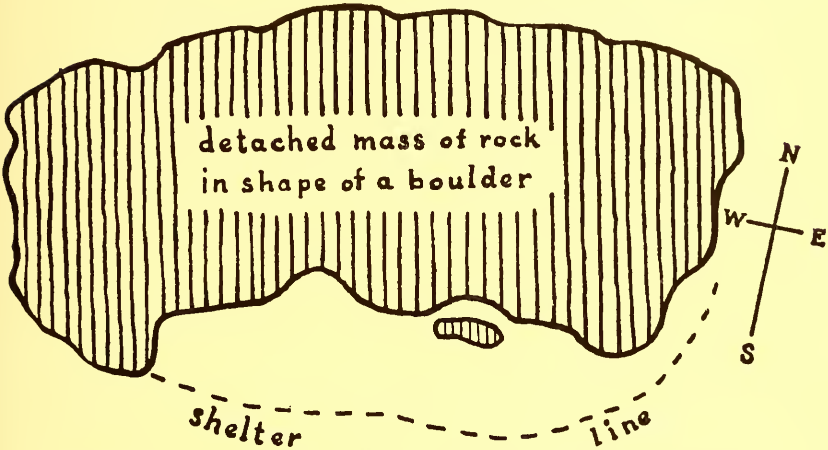
But to return to our large rock by the bank of the stream. It is oblong in outline, somewhat rectangular, with a girth



SHELTER AT WHITEHOUSE (easterly one)

of not less than eighty feet. The side fronting the brook is almost vertical, some fifteen feet high, and its base is deeply undercut thus forming a shelter, snug and inviting. The opposite side of the rock is much lower due to a sloping top.

Opening toward the southeast, the covert is fifteen feet long, about seven feet deep and five feet high along the outside, or line of shelter, but considerably lower along the inside wall because of the slanting roof. A configuration such as this compelled crouching and was bound to detract from the desirability of the place. Its elevation above sea level is about 1060 feet.



Whitehouse Boulder Shelter. Length about 25 feet, maximum overhang 7 feet. It faces south, southeast. Its roof is 5 feet above the line of shelter, but slopes down in the rear.

The floor of the shelter was covered with a thick layer of dead leaves blown in by the wind. Beneath this lay a band of yellow sand or gravel of varying thickness containing no tell-tale marks referable to the Redman. A transversal trench, i. e., one at right angles to the rear wall, was dug through the centre of the sheltered space and this showed the entire deposit to be nothing but yellow sand down to a depth of at least ten inches. It was, however not wholly devoid of remains, for six inches below the surface a small bone was turned up, evidently cervine, or of the deer. This augured well and shifting the excavation toward the right-hand section of the shelter, I encountered near the back wall a mass of black dirt, some two feet square and extending from near the surface, where it was overlain by a thin stratum of gravel, to a depth of about ten inches, at which level the native rock was struck.

As this patch of discolored soil enclosed some ancient charcoal and not a few fire-stained pebbles, it was apparently a firepit or hearth. Buried within this mass were most of the remains recovered under this rock. Not only were these tell-tale marks of the crudest, but their vertical distribution throughout the dirt was pell-mell, with potsherds, chips and broken points occurring at all depths, near the surface as well as near the bottom.

The following is a list of the material found in the pit: a score of potsherds, mostly of small size, plain, viz., undecorated, seemingly belonging to two pots, if judged by thickness and color; two small deer bones, charred by fire; chips of jaspar, flint, glassy quartz and chert; a tiny point, of smoky quartz, imperfect with the base broken off; a crudely fashioned point, of chert, showing an indented base, possibly a reject; a triangular flint point with deeply bifurcated base and one auricle missing and part of an old clay pipe of curious design, near the surface. Whether this pipe was obtained by barter and used by the Redman cannot now be ascertained.

Between the pit and the back wall, where the black dirt thinned out, a hammerstone lay superficially buried under a large stone. It consisted of an oval, water-worn, hard-grained sandstone pebble and was pitted on one side only. It has been suggested that this type of prehistoric objects was not used exclusively for cracking nuts, or bones, to obtain the marrow, but may have done service also as a heat stone, so called, it being surmised that the Indians heated these

SKELETON'S CAVE, WHITEHOUSE

stones and placed them in a pot of cold water, thus raising its temperature to near the boiling point. This, surely, was a roundabout process, made necessary by the poor quality of their earthenware, which could not readily withstand great heat over a blazing fire.

As for the left-hand compartment of the covert, it appeared to be destitute of all signs of an archaeologic import, for its floor was obstructed by numerous rocks, not to speak of the low roof which was barely three feet high.

THE SKELETON CAVE.

Back of the shelter is a high rugged cliff with a deep cavern just below its top. It required but a glance to see that this cave was no longer in its original condition as its floor had been scraped and paved with flat slabs of rock, and a low stone wall had been built across its mouth. Having been a splendid natural retreat, the aborigines are quite likely to have used it, but whether they did so or not can no more be determined because of the changes here wrought. It is reported, however, that many years ago a human skeleton was discovered in this cave, propped up against the wall, and as usual, the presumption is that it belonged to an Indian.

THE WESTERLY STATION.

About one-third of a mile west of the place just dealt with is another natural covert testifying to ancient occupation. The character of the land surrounding it is one of weather-worn cliffs, rock-strewn gullies and marshy spots. Here, a ledge, not higher than twelve feet, trends east and west along the margin of some bog land, which lies north of it and is drained by a small stream.

At a point where the cliff is highest, there is a group of natural overhangs such as would have appealed to aboriginal taste. One of these looks particularly desirable and, as its examination disclosed, it was visited by the Redman time and again, it would seem. Structurally, it is unusually well shielded from the elements, nestling as it does under a great sheltering arch of rock that juts out fully fourteen feet, at an elevation of some ten feet above the floor along its outer rim, and of six feet farthest in.

A long block of rock, that had broken off the cliffs untold centuries ago, reposes lengthwise in front of the shelter about four feet from the inner wall, protecting its entire length of twelve feet. Smaller rocks at its two extreme ends afford additional protection, the result being a perfect covert, enclosed on all sides save to right and left, where entrance is gained. Unfortunately, this rock looks north, an exposure which deprives it of all sunshine except perhaps during early morning in summer. And here it is to be recalled that many a fine rock shelter was spurned apparently for no other cause than that it gave to the northward. But in the case of this rock a drawback such as this was not considered serious enough to militate against its use.

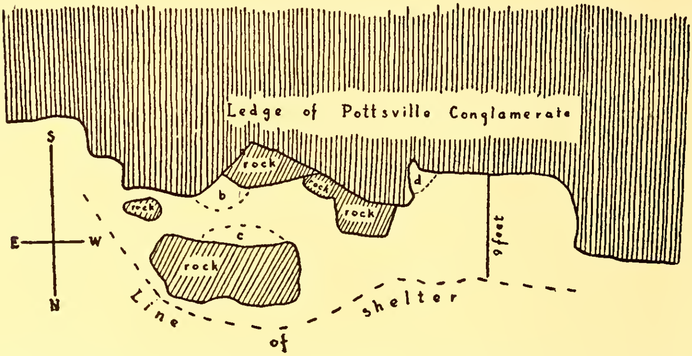
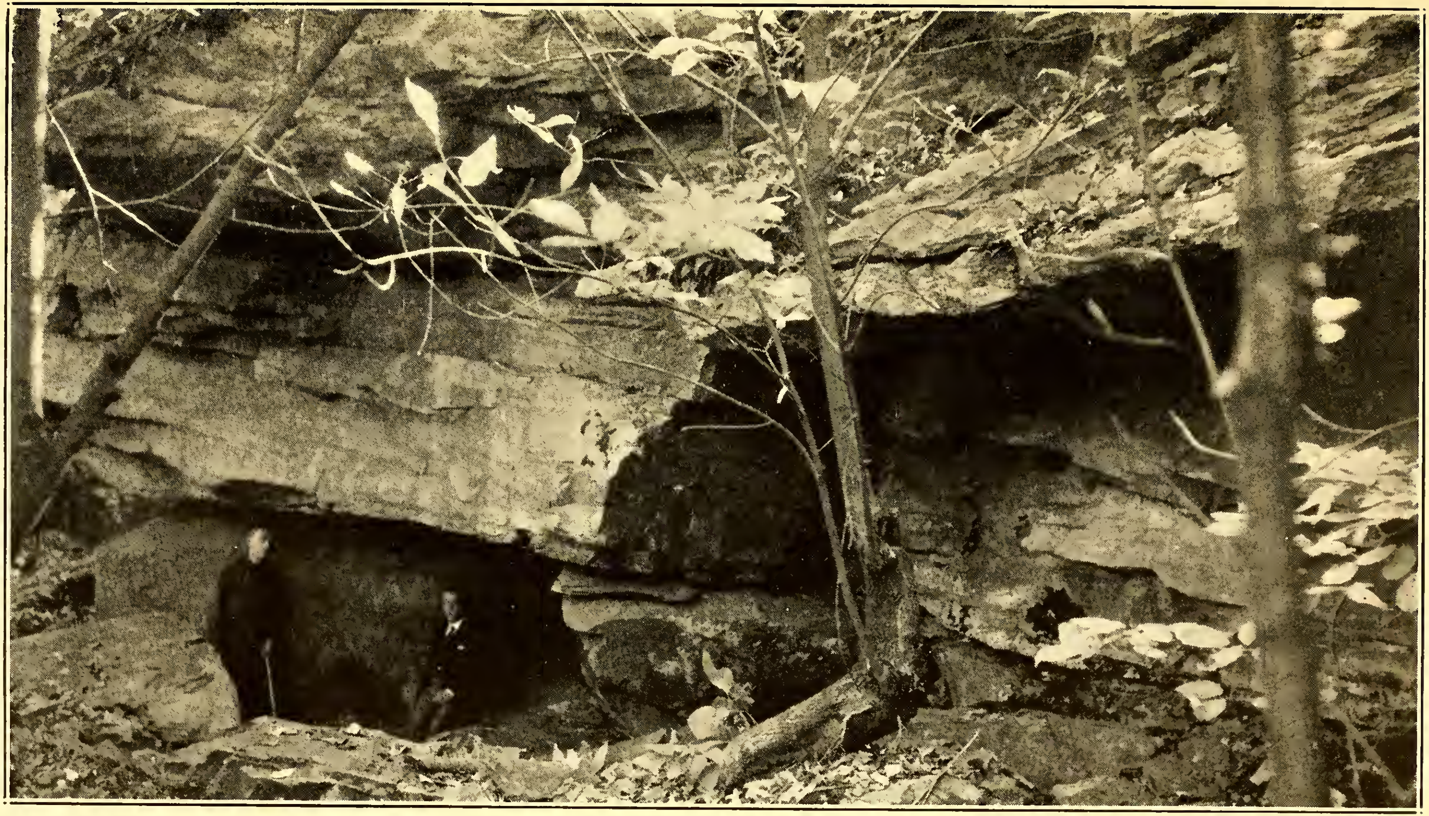


Diagram of one of the Whitehouse rock shelters. Length about 25 feet, maximum overhang 14 feet. Roof 12 feet above floor along line of shelter and about 6 feet inside. a, spot where many potsherds were found; b and c, probably firepits. This rock faces north.

Being a good covert, snugly ensconced amid environing masses of rock, it was bound to attract the attention of some redskins happening to pass this way. In fact, such was my confidence in its archaeologic significance that at the outset



SHELTER AT WHITE HOUSE (westerly one)

I had no doubt of finding the well known remains that are always associated with aboriginal activities.

A glance at the sheltered space showed that the rock had been resorted to within more recent years as its floor was littered with charred pieces of wood and other modern débris, overlying and mingling with a thick deposit of dead leaves. This removed, I found a top layer of black dirt, containing ashes and charcoal to a depth of about four inches and due, no doubt, to the white man's fires. Being lately accumulated, this mass of dark soil was devoid of any prehistoric tell-tale marks.

To attain the best results, it was now deemed advisable to dig a transverse trench through the centre from the rear wall to the oblong boulder in front, a distance of five feet. The soil here was mixed with stones, large and small, and quite black down to fourteen inches where it changed into light-colored gravel.

Some five inches below, the first objects came to light in the shape of a few cord-marked sherds and small pieces of bone, apparently of the deer. Between six and nine inches below other pottery fragments were dug up, most of them displaying cord-markings except a section of a rim sherd, two and a half inches long, which was decorated with parallel dotted lines below the rim and the latter was recurved, exhibiting dotted lines both on the outside and the inside of the jar. In addition, there were at this level bones and chips of jasper and flint, all quite small.

Still farther down, I came across some more fabric-marked sherds along with a roughly wrought scraper or reject, nearly two inches long. The whitish gravel at the bottom just referred to was seemingly barren of cultural débris.

Extending the excavation to the left of the shelter, its subsoil was likewise discolored by an admixture of ancient ashes reaching down about twelve inches where it was underlain by coarse sand. At a depth of some six inches there was a quantity of bones, apparently belonging to the deer, together with several pieces of pottery, cord-marked, and a small sherd ornamented with dotted lines, similar to the one above mentioned.

The only perfect specimen of primitive workmanship occurred a little below this stratum, at a depth of some eight inches. This was a lozenge-shaped point of argillite, one and three-quarter inches long by an inch wide. The deposit to the right of the ditch was poor in relics for nothing came to view but a few plain sherds, some tiny bones and a small quantity of broken fresh water shells, either unio fluviatilis or unio complanatus. All this material lay embedded in dark soil at from six to nine inches below the surface.

Altogether, this station yielded some thirty bones, mostly cervine, between forty and fifty sherds, a score or so of chips, but only one complete artifact, as already stated. A careful study of the pottery fragments makes it appear that they belonged to no less than four different pots and their decoration is of the Algonkin type.

The conclusions to be drawn from an assemblage of débris such as this are quite obvious. The bones hint at cooking as do also the pottery remains. The latter, moreover, seem to imply the quondam presence of squaws. As for the chips of various material, they are the refuse of implement-making, telling us that under this rock the Redman fashioned some of his tools. Further, the fact that the entire deposit of soil was charged with ancient ashes, giving it a dark color, denotes that fires had been kindled in all parts of the shelter at one time or another and successively rather than simultaneously.

Directly to the right of the covert and along the same cliff is another one with a roof jutting out some ten feet, about eight feet above the level floor, which here shows no traces of fire. Digging up a pocket in the rear wall, the trowel turned up a large quantity of cord-marked sherds, some as big as a man's palm. They lay near the surface and a stone, weighing about four pounds, occupied the very centre of the heap, giving the impression that it had been dashed upon the pot once placed there, shattering it completely. After gathering up all the fragments, there almost seemed to be enough of them to reconstruct this broken vessel. And, indeed, judging by the nature and color of the clay used, the fragments seemed to have belonged to a single jar.

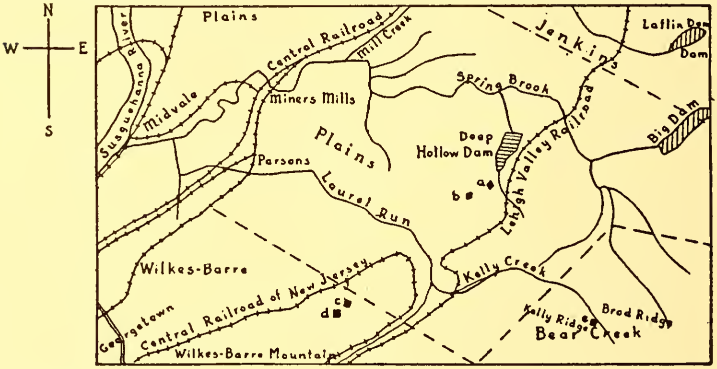
It remains to be pointed out that the two Whitehouse rock stations are the only ones located within Wyoming Valley proper. Yet, though it is extremely doubtful, in view of the thorough search made by the investigator, that others may still await discovery, there can be no question that since the white man's arrival in the valley more than one of these interesting places has met with destruction. In a subsequent chapter I shall take occasion to dilate upon what may have been the sites of such rock abodes.

That the district formerly known as Whitehouse was often invaded by the ancient dwellers along the banks of the Susquehanna may be regarded as certain. At any rate, the occurrence of two prehistoric rock stations bears witness to their whilom presence within this area. But why should they have come hither ever and anon and why, indeed, should they have lingered in this wild and inhospitable region unless it was for the best of reasons, namely, the prospect of game aplenty. Rugged as it is to this day, what must it have been centuries ago with its cloak of primeval forest, its windfalls and dense tangles of underbrush! Here, in fact, were game coverts galore, with the jagged crags cleft by the elements and broken into fantastic shapes, affording countless lairs for creatures large and small, among them bear, catamount, wild cat and wolf.

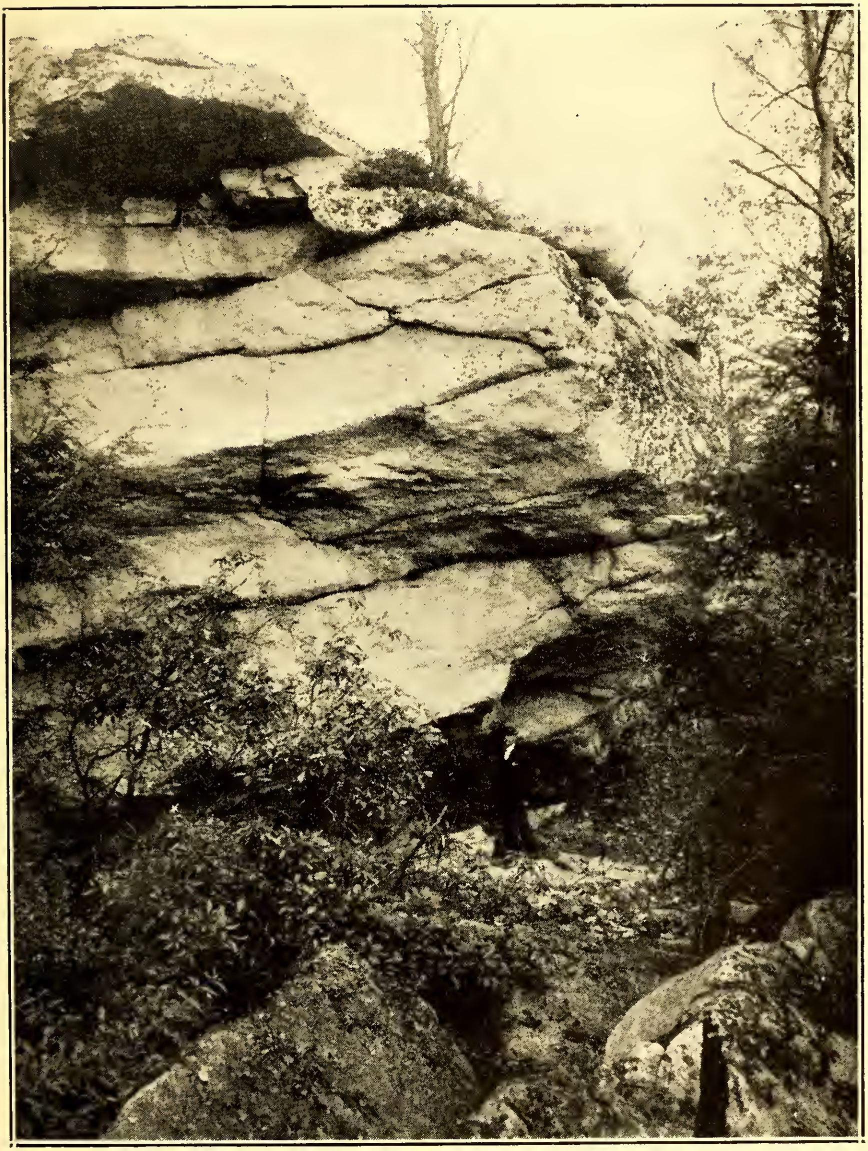
Admittedly, the scantness of the culture débris under the two rocks does not betoken frequent let alone prolonged occupation on the part of the dusky sons of the forest. However, it is to borne in mind that this particular locality was but four miles from the Susquehanna, as the crow flies, and possibly six miles along a tortuous trail, a distance which any woodsman could cover in less than two hours. Consequently, the aboriginal huntsmen may not have cared to sojourn here for any length of time, but preferred instead to return to their more permanent camp fires on the river after the day's chase was over. Hence, the seeming discrepancy between the paucity of local remains, on the one hand, and the theory of frequent visits to this district, on the other, may be easily accounted for.

ROCK SHELTERS ON WILKES-BARRÉ MOUNTAIN.

West of Laurel Run Gap, bounding the banks of the stream, Wilkes-Barré Mountain rises abruptly in a steep acclivity, some two hundred feet in height. Just above the railroad, which here sweeps around the mountain in a bold loop high upon its rock-strewn flanks, an outcrop of white conglomerate stretches uphill in a straight line toward its higher levels in a southeasterly direction, parallel to the trend of the mountain. Structurally, it is a formation known as escarpment and slope, presenting its cliff-like face toward the southeast but falling away more gently toward the northwest. This rocky crest extends for about a mile overlooking in its upper portion a shallow depression less than a hundred feet



Map showing exact site of the two Deep Hollow Dam rock shelters, marked a and b; the two Wilkes-Barre Mountain shelters, marked c and d; and the Kelly Ridge Rock Cabin marked e. Scale—½ inch to a mile.



SHELTER ON WILKES-BARRÉ MOUNTAIN
(Mountain Park) near Hermit's Cave. Distant view (a).

below the summit, which here reaches an elevation of 1420 feet above the tides.

At this point, that is, about a mile southwest of the Gap or Narrows and in the vicinity of the old Mountain Park, the crags are not only of superior height but remarkable for the bizarre shapes they have come to assume under the influence of the tooth of time. Weather-worn and disintegrated as they are, their bases are choked with detritus and a further effect of this wear and tear is the formation of numerous overhangs and caverns.

Among the dozen natural recesses or coverts noted there were no fewer than five that a wandering Indian might have chosen as a temporary abiding-place. Two of these showed signs of having been visited, but though the archaeological harvest reaped here was exceedingly scant, the discovery, such as it was, could not but be valuable in that it served to furnish additional data, however insignificant, regarding the movements and activities of the ancient inhabitants of Wyoming Valley.

THE NORTHEASTERLY SHELTER.

This station lies at the base of a forty-foot cliff and is by far the largest of the nine aboriginal rock retreats thus far

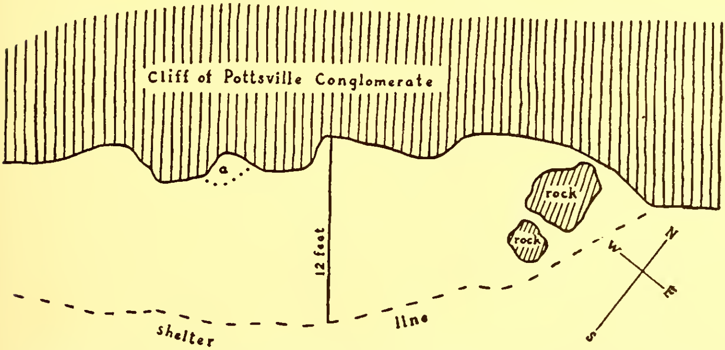


Diagram of rock station c, on Wilkes-Barre Mountain; it lies about 1300 feet above sea level, faces southeast, with roof jutting out on an average of 12 feet, 15 feet above the floor near shelter line and some 9 feet in the back. Total length of shelter 40 feet. The cliff is more than 40 feet high. a, niche where potsherds lay.

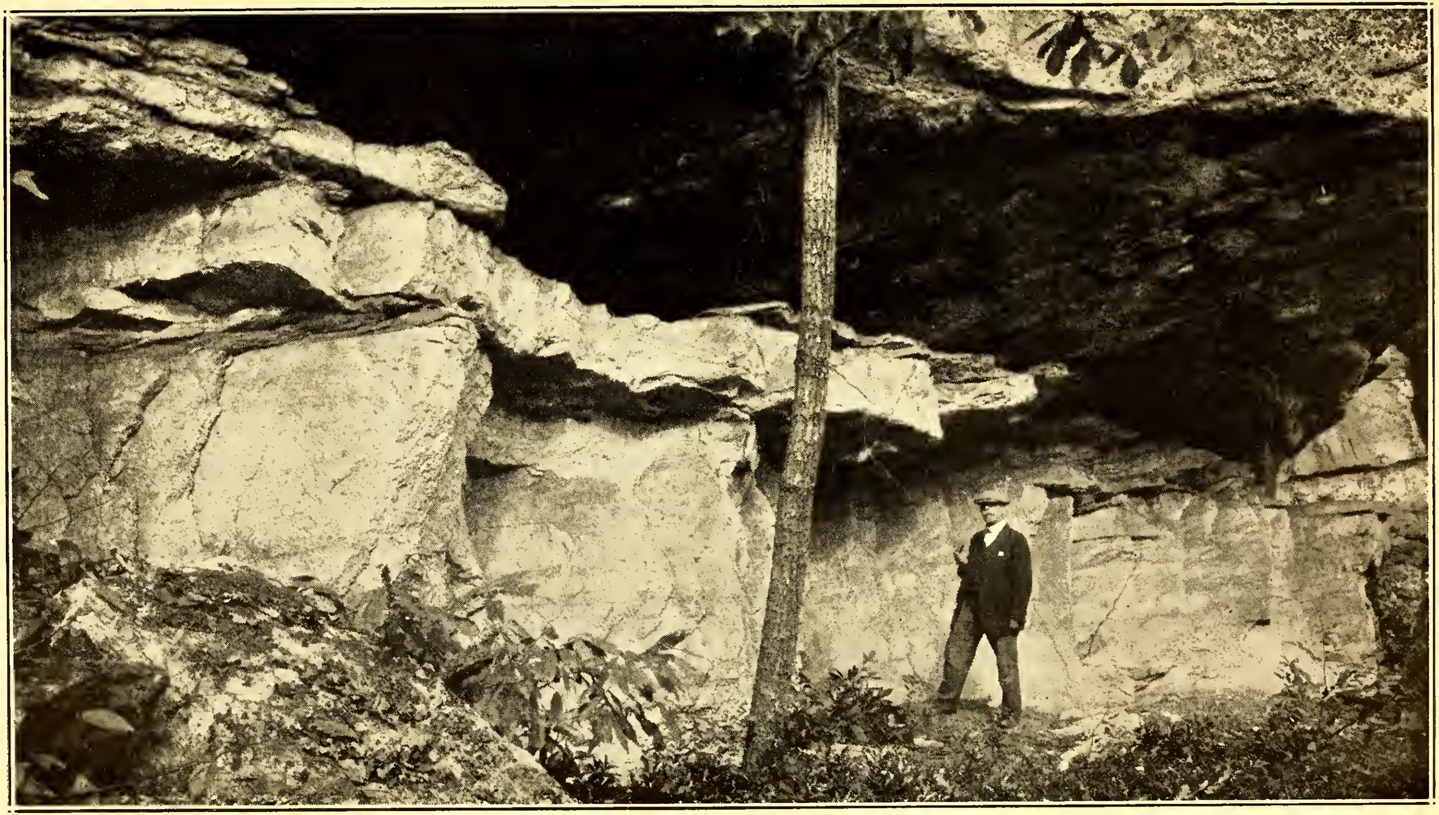
identified by the writer. It is forty feet in length and protected overhead by a mass of rock, jutting out about twelve feet, some fifteen feet above the floor along the line of shelter, but only nine feet farthest in. Its exposure is southeastward and its altitude above the sea approximates 1300 feet.

The floor of this shelter was quite smooth and composed of gravel derived from the weathering of the native conglomerate rock. Its surface disclosed no traces of having been disturbed, no indication of an ancient fireplace, nor were there any smoke stains on the face of the ledge. Being such a good covert, however, test holes were dug along the inner wall, albeit with negative results, until at last a shallow niche was struck near the centre.

At this spot, two inches below the surface, a small cord-marked potsherd came to light and this was followed by additional fragments, fifteen in all, lying buried to a depth not exceeding five inches. Along with these a solitary jasper chip was turned up not far from the surface. The excavation in and near the niche covered a space about two feet square by no less than fifteen inches deep and the soil was gravel with no indication of a hearth. All the pottery pieces were of small size, cord-marked and of coarse material, varying sufficiently in thickness and color as to suggest the breaking up of, say, three pots.

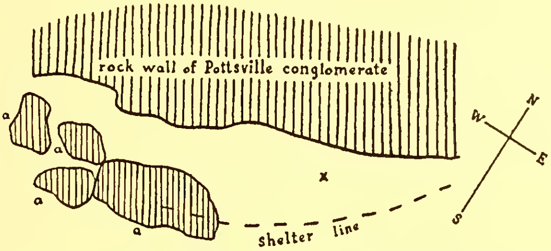
THE SOUTHWESTERLY SHELTER.

As regards the other place, it lies about 150 meters farther southwest in the immediate proximity of what is locally known as the Hermit's Cave. The latter is largely artificial, being a deep natural recess in the cliff, originally open on top but now roofed over with huge slabs of rock. In point of configuration it is a fine shelter, some twenty feet long by eight feet deep, and well protected, laterally and in front, by masses of fallen rock. Like the former it faces southeast, at an elevation of some 1300 feet above the level of the sea. Its floor is mostly rock bottom covered with a thin layer of



WILKES-BARRÉ MOUNTAIN SHELTER (easterly one)

gravel. No sooner had I begun scrutinizing its surface than I caught sight of a small triangular arrow point, of flint, lying plainly exposed to view. A few chips of the same material occurred near by half buried in the soil. Apart from these nothing else was found.



Ground plan of station d, on Wilkes-Barre Mountain, at an elevation of some 1300 feet above the tides. It fronts southeast, with a roof projection averaging 8 feet, and is some 20 feet in length. a, a, a, a, are large masses of fallen rock; x, is the place where a triangular arrowpoint and a few chips were found. Distance between this rock and the above about 150 meters (160 yards).

As previously stated, there is a depression or intervale paralleling the long strip of steep outcrops to the northwest and hemmed in on the southeast by a gently ascending ridge, that forms one of the summits of Wilkes-Barré Mountain, 1420 feet high. In this depression, midway between the two shelters, water collects in a shallow rock-basin during rainy weather only to disappear again in times of drought. Precarious though this supply may have been, even at the time when all this region was densely timbered, there can be little doubt but that its intermittent appearance near these rocks tended to make them more desirable and may account for the fact that they have at all been resorted to. In other words, had water been totally absent the shelters would probably have been passed by.

Pondering the evidence extant at these shelters, little can be said beyond the fact that they were rarely visited. The fragments of pottery, few in number but seemingly differing in color and thickness, may have belonged to several pots, placed under the rock and subsequently shattered to bits in one way or another. Being of a type commonly found on aboriginal camp sites in New Jersey, they may be referred to Algonkin culture.

The triangular arrow point, noted under the second rock, tells a tale of its own. Being a perfect specimen, it was evidently not discarded, rather it may have been shot at some creature hiding here or else the roving Redman, who chanced to stop here while on the chase, lost it out of his quiver, while the chips scattered near by reveal him in the act of manufacturing a few points. This type of point is distinctly Iroquois.

It is not probable that a well trodden trail ever traversed this section, for it was somewhat out of the way and remote from the more important routes of travel which invariably followed the line of least resistance. We doubt not, however, that a minor path wound along the high-level intervale, a path not much frequented and often becoming dim and overgrown from disuse.

THE MOSSY RUN ROCK CABIN.

We will now pass beyond the confines of the valley and enter the section of country near Big Dam Reservoir, back of the hills, about five miles east of Miners Mills. This is a rugged tract of land or narrow valley trending east and west,

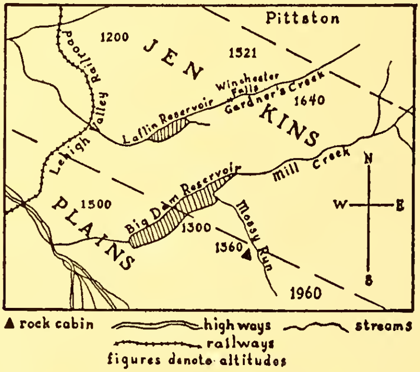
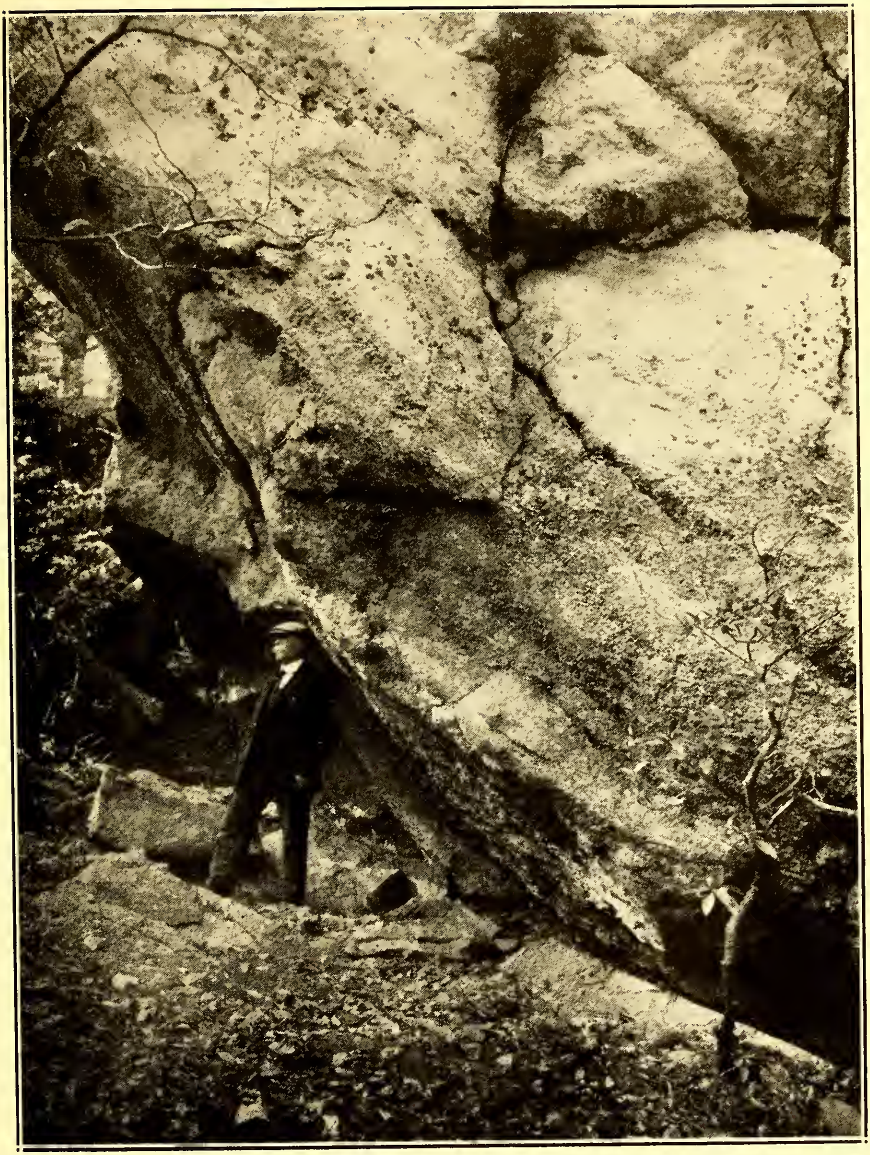


Chart showing situation of Indian rock cabin west of Mossy Run.
Scale 1 inch to 2 miles.



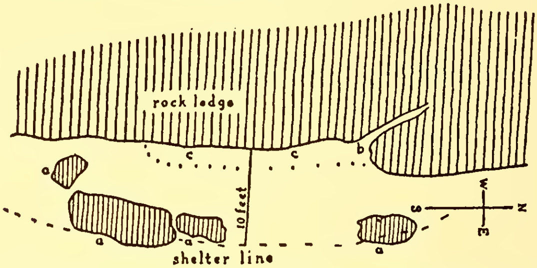
WILKES-BARRÉ MOUNTAIN SHELTER (westerly one)

bounded northward by steep hills and southward by the rock-strewn slopes of Bald Mountain, which is about 2,000 feet above tidewater. One of the numerous branches of Mill Creek, Spring Brook, runs through here and the construction of a large dam athwart its course has resulted in an artificial lake or reservoir more than a mile and a half in length. Several smaller streams, all flowing northward down Bald Mountain, help to feed the creek and on one of these, known as Mossy Run, an Indian rock abode was noted.

Although local woodsmen had for many years been well acquainted with this place, called by them the Rock Cabin, its archaeological significance was destined to remain totally unsuspected until the writer began examining it. It lies on the northern flank of Bald Mountain, at an elevation of between 1,500 to 1,600 feet above the sea, some nine miles from the Susquehanna and almost directly east of Wilkes-Barré.

What with the roughness of this territory and the density of forest vegetation all about, the rock cabin is not easily found without a guide, for though there is a maze of trails bearing in its direction, none of them seems to lead to it. The best way to reach it is by following the road from Miners Mills eastward to the culvert of the Lehigh Valley railroad, thence past Hendler's quarry along Bald Mountain road to the schoolhouse. Here one takes the private road to the left, which terminates at the Big Dam, thence along the south shore of the reservoir for about a mile and a half as far as the mouth of Mossy Run, thence up this stream for a scant mile and you will be near your goal.

In this locality, less than a hundred feet west of Mossy Run, there is an outcrop of Pottsville conglomerate, vertical in places and with its steep scarps fronting the brook. Here, at the base of the crag, is a large cavernous formation, facing east, some thirty feet long by ten feet deep with a great bulk of rock protecting it overhead, twelve feet above the floor. Structurally, it is a remarkably fine covert and, in fact, the best of the nine rock sites identified within the region under review during the survey of 1923. Further, it is the fourth

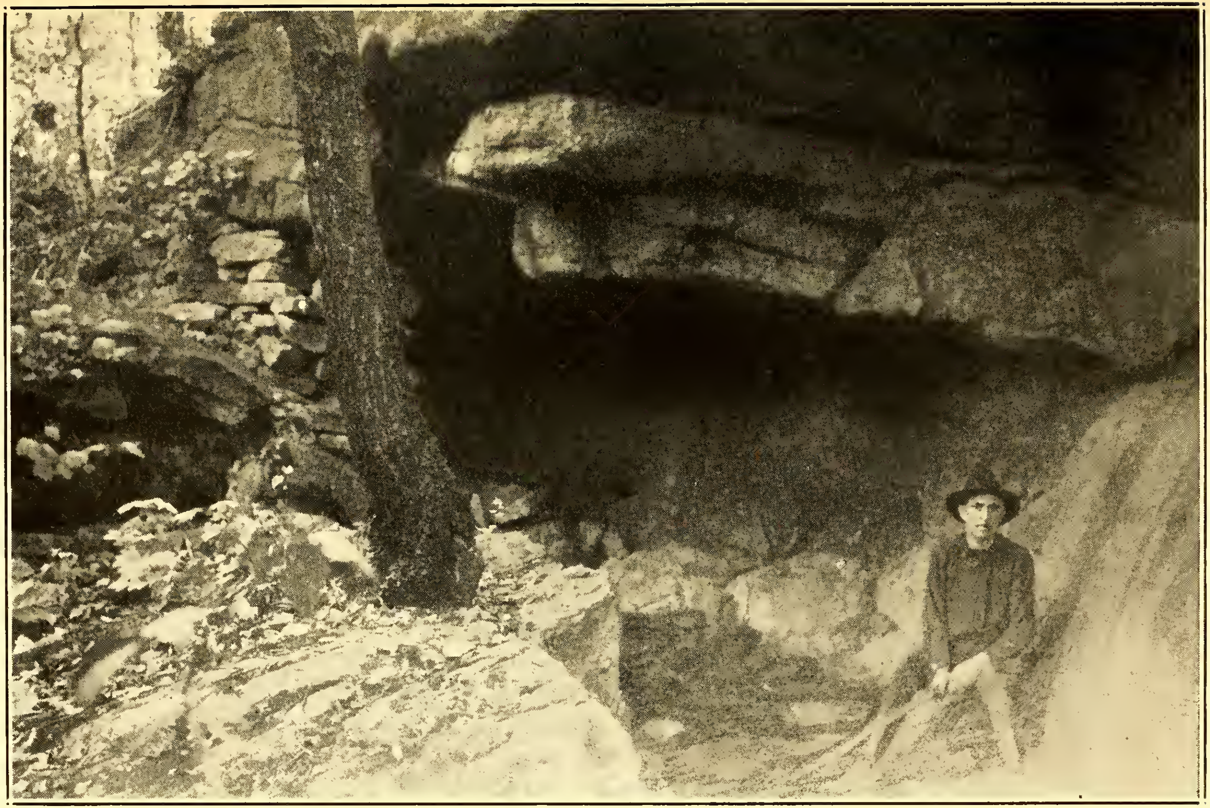


Ground plan of Indian rock cabin along Mossy Run. It faces east and is at the base of a cliff of Pottsville conglomerate. Total length of shelter some 30 feet; roof about 12 feet above the floor and it projects 10 feet on an average. a, a, a, a, are boulders; c, c along back wall show site of fireplaces; b, is a cleft in the ledge.

largest of this group, being surpassed in size only by the Wilkes-Barré Mountain shelter, just dealt with, the Kelly Ridge rock cabin, and the Indian cabin at Carverton.

Small wonder that with respect to prehistoric remains it proved superior to any of the eight shelters situated within and near Wyoming Valley. Nor was it strange that a place such as this should have found favor even with the white man, as was evidenced by the improvements he had made. And, in fact, wholly one-third of the sheltered space had been walled up within recent years, the rocks being piled up from bottom to ceiling, enclosing it laterally and partly in front. But as in addition, the floor of the chamber thus formed had been scraped out with whatever of cultural remains it may have contained, this section of the covert was ruined, archaeologically speaking. Yet there still remained the major portion and this was to all appearances intact or much like the Redman knew it.

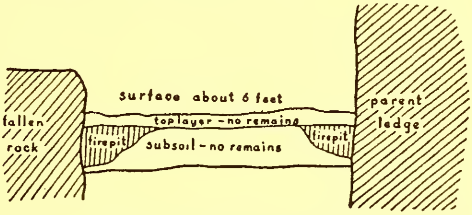
It was, indeed, gratifying to find that the floor of this section had been left quite undisturbed. There were, to be sure, sundry modern remains littering its surface, like logs, beds of cinder and pieces of crockery, but these accumulations did not penetrate deep enough to interfere with the relative position of the objects that were buried in the lower levels.



SHELTER ON MOSSY RUN
South of Spring Brook Reservoir; north slope of Bald Mountain.

Preparatory to digging it was necessary to clear the place of the dead leaves and white man's refuse. This done, the top soil was seen to be composed of blackish soil mixed with stones. Its dark color was, of course, due to the fires kindled by recent visitors, but as the excavation proceeded the entire deposit of dirt under the rock was found to be discolored and there could be no doubt that the traces of ashes and charcoal in the subsoil together with the heat-cracked stones were referable to aboriginal fires. This in itself was an interesting observation suggestive of repeated visits on the part of the ancient huntsman, an observation quite independent of other evidence to the same effect presently to be forthcoming.

A trench was dug along the rear wall, commencing at the extreme left near the enclosed section of the shelter. At a depth of three inches or so some small sherds, plain and cord-marked, came to sight together with a few chips and a broken arrow point of smoky quartz, an inch long. Farther down lay a small quantiy of shells of the common brook mussel, all badly fractured, associated with deer bones. Nothing was recovered below the ten-inch level.



Mossy Run Cabin. Six-foot section of transverse trench in left-hand part of shelter, showing firepits near fallen boulder and parent ledge.

In the right-hand portion of the trench there was what appeared to have been a firepit of considerable depth, extending downward about fourteen inches and yielding several heat-cracked pebbles along with fabric-marked potsherds, most of these in the upper levels, and among them there were several thick fragments, rudely ornamented with vertical, parallel lines.

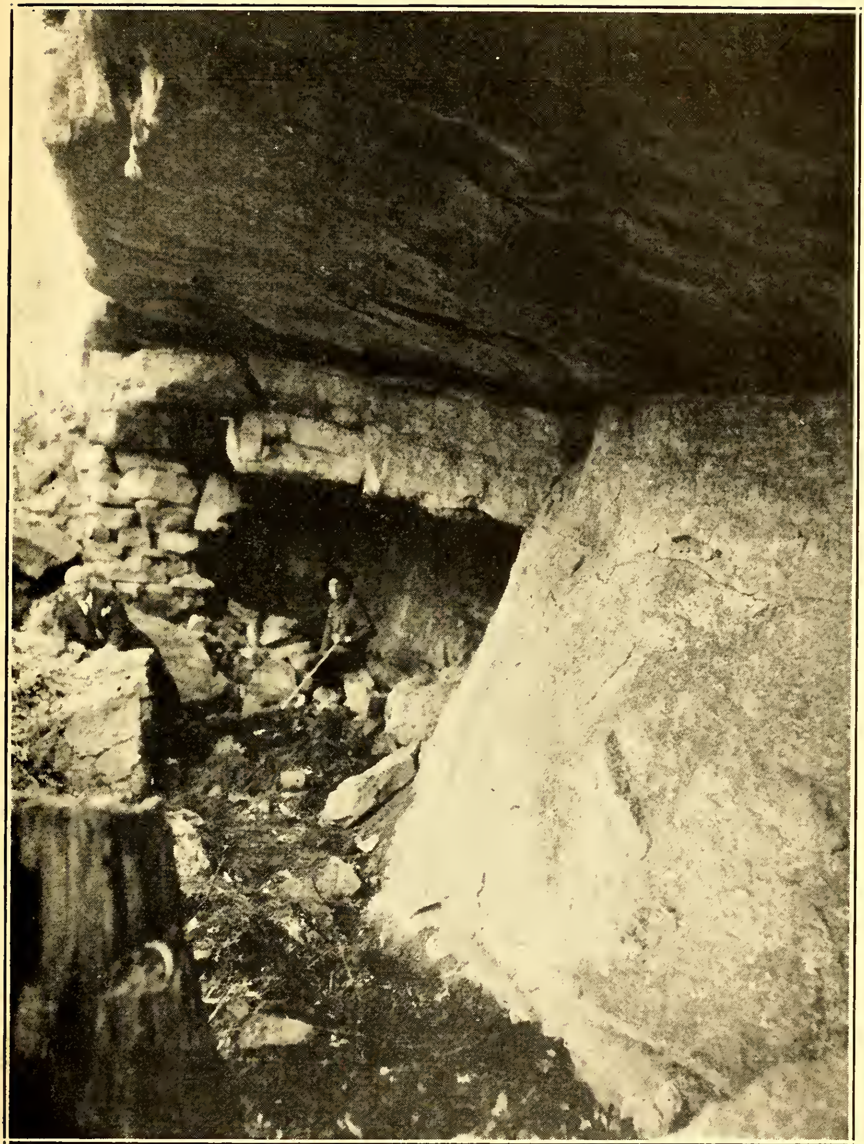
Adjoining this pit to the right, at a point where the back wall is fissured and cleft, there was a shallow deposit of dirt, containing the pièce de résistance of primitive art as here represented, namely, a beautifully carved stemmed jasper knife, one and three-quarter inches long by one and one-third inches wide. In the fissure itself lay a couple of chips, a small piece of a bone, apparently of the deer, and a few tiny sherds.

What may have been a second firepit was struck still farther to the right. It was filled with black dirt down to a depth of twelve inches and it yielded the usual smoke-stained stones together with a jasper chip and a couple of sherds.

Digging up the remaining portion of the covert toward the outside but well within the line of shelter, the character of the subsoil here also was such as to show plainly the action of fire, as already stated. The culture-bearing deposit was some ten inches in thickness and it contained additional pottery fragments, either plain or cord-marked, the rim of a vessel, notched or indented atop and decorated below with oblique parallel lines, suggestive of Iroquoian influence. All of these were distributed pell-mell throughout the subsoil. There was further turned up a large fragment of a jasper knife or scraper together with chips of flint and chert, all very small and on an average about the size of a dime.

Altogether there were unearthed some eighty pieces of pottery, most of them cord-marked. Some were quite thick, others very thin and we may not be wrong in assigning them to two pots. As for the other sherds, they appear to be the remnants of three more pots, making a total of five jars carried to this cabin. A comparison of these fragments with those that are peculiar to New Jersey prehistoric sites would seem to bespeak identity of culture between the two, i. e., they are probably of Algonkin origin, though in this case showing some Iroquoian influence.

The small number of bones noted seems somewhat anomalous when contrasted with what must be interpreted as being



SHELTER ON MOSSY RUN
South of Spring Brook Reservoir, north slope of Bald Mountain, side view (a).

indicative of large and frequent fires, kindled primarily for the purpose of cooking and also of keeping warm. As for the flakes of various material embedded in the débris, these, of course, testify to the manufacture of stone tools, albeit on a very moderate scale. Speaking of the jasper knife, we may take it for granted that it was not wilfully discarded. Being a useful implement of perfect workmanship, there can be no question that it was lost.

In common with most other prehistoric rock stations this cabin afforded no evidence of ever having been occupied for any length of time for in that case the accumulated culture débris would have been much more considerable in quantity and variety alike. We may safely assume, though, that it was resorted to repeatedly at greater or less intervals of time if only for a brief sojourn, and most often perhaps at dusk when the wandering hunter, overtaken by darkness far away from his wigwam, would naturally be looking for a place wherein to pass the night.

THE ANGLERS' HAUNT ON THE LEHIGH.

Though situated within the borders of Luzerne County, this station is quite remote from the particular area that forms the main subject of this paper. Before, however, setting forth in detail the character of this place, as revealed by the cultural contents there noted, it will be proper to preface a few remarks descriptive of its physical environs.

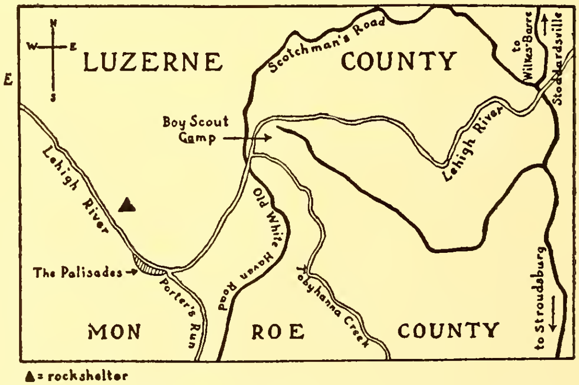
THE LAY OF THE LAND.

At the outset, be it stated that here is a section of country as yet little affected by the ravages of the white man's civilization. In fact, most of it is still a primeval wilderness, the only conspicuous change affected being the cutting of the superb forest originally mantling its fastnesses, grim and forbidding. Accordingly, it is even now but thinly peopled, the widely separated farmsteads being scattered along infrequent highways.

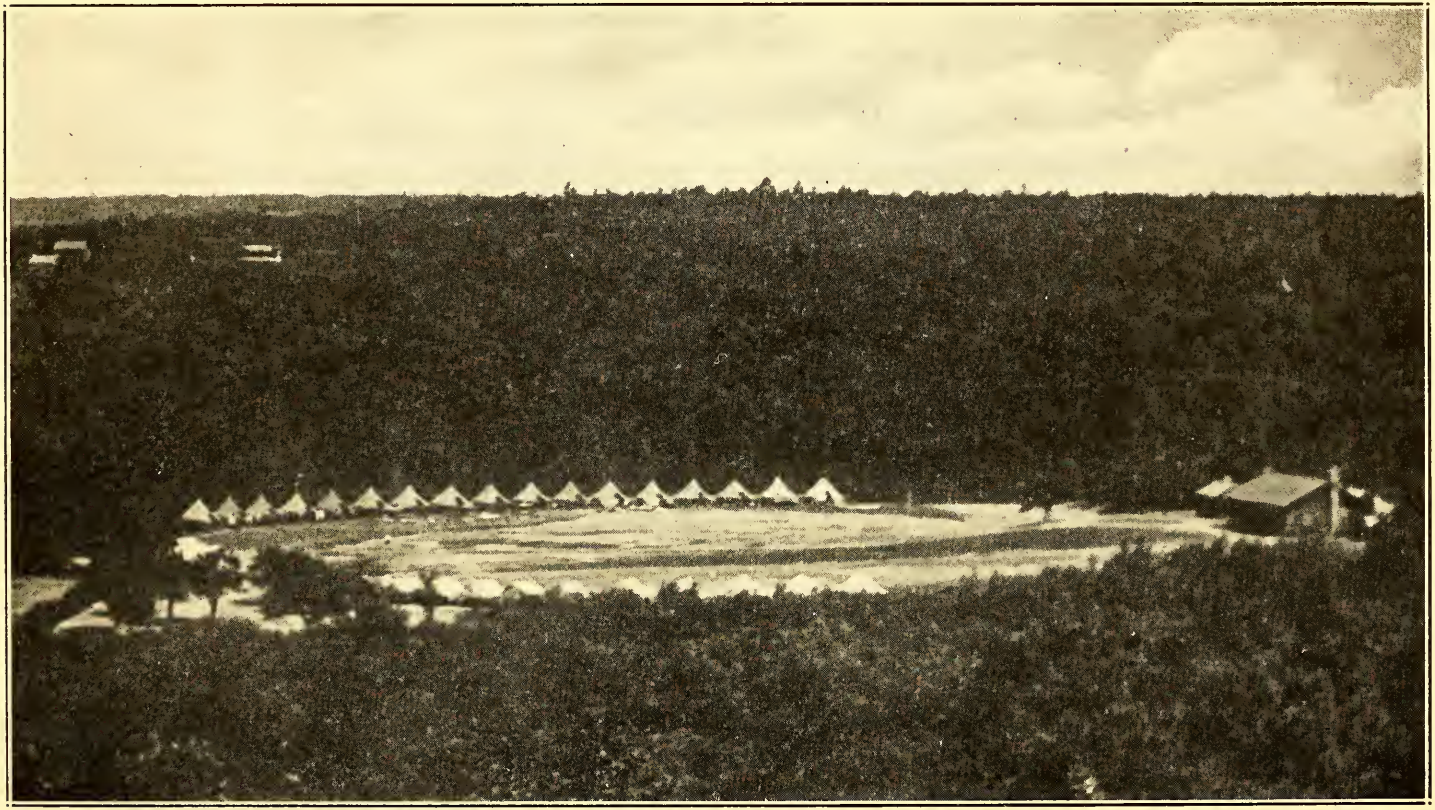
Topographically, it is a region of rough relief, a complex of hills and dales, of jagged cliffs and ravines, much of it thickly wooded with a third growth and drained by many a stream, all of which flow into Lehigh River, the Redman's Lehawhanna. The strip of land bordering the Lehigh, between Stoddartsville and White Haven, a distance of about twelve miles, is particularly rugged by reason of rocky ridges hemming in the channel of the stream and determining its erratic course. Such, indeed, are the physical asperities of this twelve-mile section that the building of a road along or near its banks has never yet been attempted. Nay, it is virtually impossible for a pedestrian to follow its windings while staying on one and the same side since intervening rock barriers compel crossing and re-crossing. Owing to the difficulties of the terrain the river can be approached with ease at certain spots only and these, we may be sure, were well known to the aborigines who came hither for the purpose of angling.

SURROUNDINGS OF ROCKHOUSE.

As regards the immediate surroundings of our rockhouse, they are picturesque to a degree. Here, the river sweeps in a gentle curve from the east to the northwest, bounded south-



Map showing site of Indian rock shelter near north bank of Lehigh River in Luzerne County. Scale—1 inch to a mile.

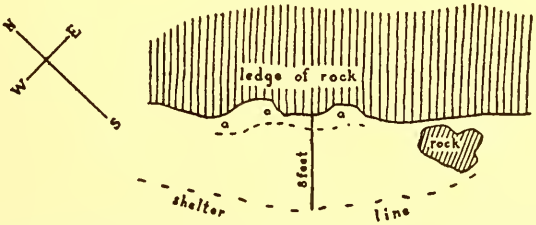


BOY SCOUT CAMP, JUNCTION OF LEHIGH RIVER AND TOBYHANNA CREEK

ward by the Palisades, so called, a magnificent escarpment or bluff of unscalable rock walls, rising from the water's edge and looming high above its channel. On the opposite side, a short distance downstream, there is a ridge or tract of elevated ground skirting the river but separated from it by a level stretch of low land that often becomes flooded in times of freshets. This ridge consists of a craggy or cliff-like upper portion that falls away toward the flood plain in a gentle slope, covered with screes or rock rubble. As so frequently happens, the lower part of the cliff has weathered away, leaving the more resistant rock on top to project far out so as to give rise to a natural shelter. It is a place that then as now could be readily approached and being, moreover, favorably situated near a stream that anciently abounded with fish, it proved, in point of prehistoric relics, to be the most important of the nine rock sites discovered in 1923.

ITS ARCHAEOLOGICAL SIGNIFICANCE.

This station lies twenty-two miles to the southeast of Wilkes-Barré, on the west bank of Lehigh River, at a point about three miles below Stoddartsville and less than a mile below the Boy Scout camp. The rock in which it occurs is Pocono sandstone. While in respect of shape or external formation it is inferior to most of the other sites of this description, this deficiency was, as just told, amply compensated for by its excellent position close to the banks of the Lehigh.

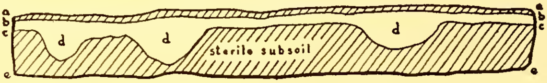


Ground plan of prehistoric rock shelter (Angler's Haunt) on Lehigh River. It fronts southwest, roof about 9 feet above floor, projecting some 8 feet. a, a, a, ancient fireplaces. The ledge, at the foot of which the shelter lies, consists of Pocono sandstone.

Fronting towards the southwest, at an elevation of some 1350 feet above the tides, its covered space is about twenty feet long by eight feet deep, with a roof no less than nine feet above the floor. The Lehigh is barely two hundred feet distant and some thirty feet below.

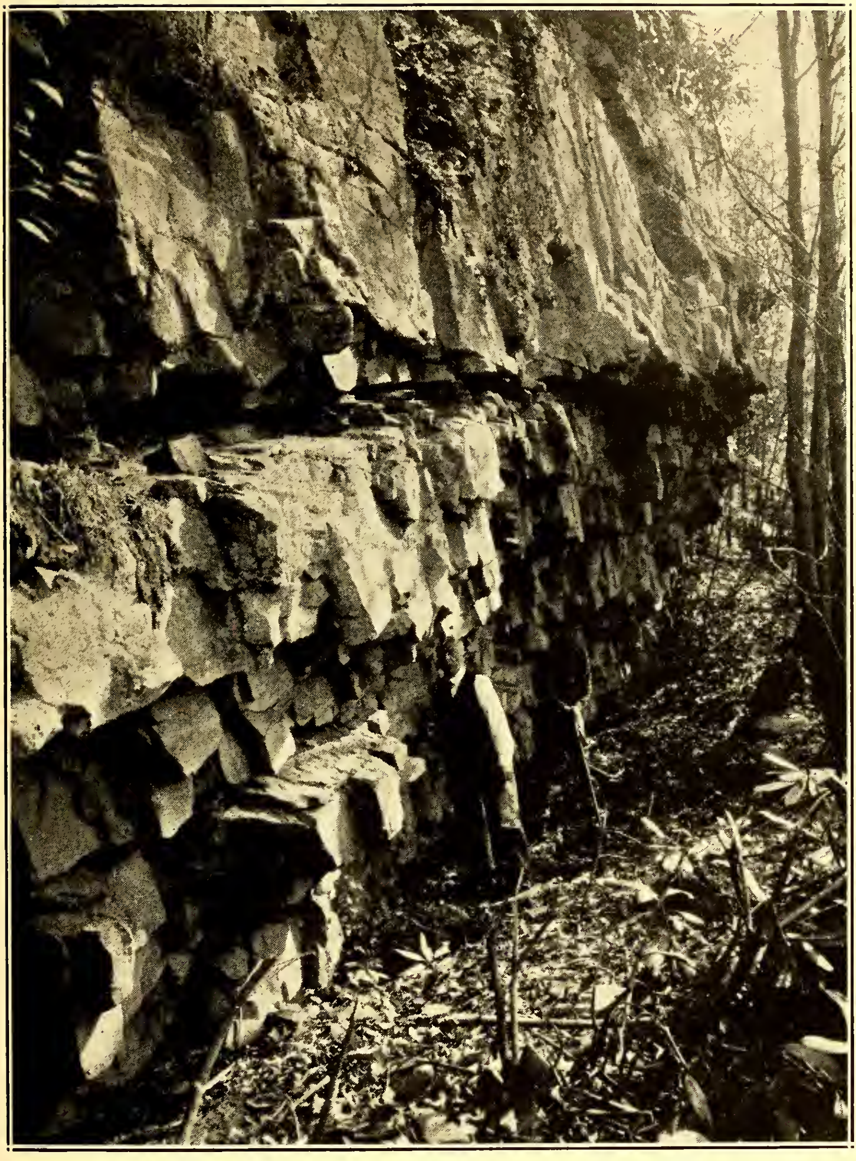
It was in the autumn of 1921 that the researcher first saw this shelter, but owing to untoward circumstances he could then do no more than make a hasty examination, sufficient, though, to establish its prehistoric character. At that time the deposit of dirt under the rock was found to be overlain by dead vegetable matter, several inches thick, which, when removed, disclosed a level floor mixed with ashes and everything appeared to be in situ, that is to say, there was nothing to indicate that it had been dug into.

In the course of the few hours spent there, a trench was excavated along the rear wall. This trench was fully twelve feet long by two wide and in places more than fifteen inches deep. Everywhere the soil was of a dark color and this, in conjunction with heat-split pebbles and traces of ancient charcoal, betokened most plainly the action of fires built centuries ago.



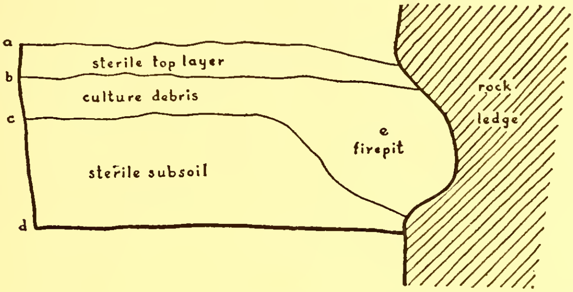
Cross section of trench along rear wall of Angler's Haunt rock shelter, on Lehigh River. Length of trench some 20 feet. Depth about 2½ feet. a-a, surface; b-b, Indian surface or level; c-c, bottom line of Indian layer; d, d, d, fire places; e-e, bottom of trench.

No less than three deep firepits could be distinguished, occupying shallow recesses or niches at the base of the inner wall. It was in these that forty netsinkers were unearthed, most of them lying in the upper levels, between two and four inches beneath the surface. All of them were flat pebbles, about two inches long by an inch and a half in width, oval in shape and invariably notched medially at opposite points.



ANGLER'S HAUNT, LEHIGH RIVER NEAR STODDARTSVILLE

They were all of them smooth and water-worn and no doubt secured along the banks of the river.



Transverse trench. Cross section opposite firepit at Angler's Haunt on the Lehigh. Scale—a-d, about 2 feet. a, modern surface; b, Indian level; c, lower limit of Indian level; d, depth of transverse trench; e, fire place.

Apart from the pits, confined within a narrow compass, more or less well defined, the dirt all around was uniformly dark and the impression gained was that fires had at one time or another, been kindled all along the wall, not all at once, to be sure but rather successively, i. e., on different occasions, according to the exigencies of those who anciently were wont to call here.

There were further exhumed an unusually large number of arrow points, triangular and notched, mostly of flint and chert, nineteen in all, some of them near the surface, others as deep as twelve inches beneath. In addition, numerous fragments of pottery jars came to hand, plain, cord-marked and ornamented, and these, too, occurred throughout all levels down to a depth of more than a foot.

Many of the sherds noted were pot rims and without exception they were beautifully decorated with incised lines, horizontal and oblique, exhibiting several styles of designs, notably the chevron, so called. Some of the rims were large enough to show the raised collar in complete sections, so characteristic of Iroquoian culture, and a few were angular or indicative of a square-mouthed vessel, a type even more distinctively attributable to Iroquoian influence.

Chips or flakes were also comparatively common, suggestive of the making of implements, and the minerals used were black flint, chert, quartz and jasper. On the other hand, bones were rare and these belonged chiefly to the deer. This latter observation was replete with meaning. For one thing, it affords a clue, however negative, regarding the diet of those who once camped under this rock. To be more explicit, it would appear that they did not, while here, subsist to any great extent upon venison or the flesh of other warm-blooded animals.

What, then, did they partake of? The answer seems plain. And, indeed, considering the peculiar situation of this place the presumption is in favor of assuming that they derived most of their aliment from the river in the form of fish. But of these, obviously enough, no vestiges could be found by reason of the perishable nature of fish bones. Corroborative evidence tending to show that this spot had been visited almost exclusively by anglers was subsequently brought forth, but of this later.

As previously stated, it was not possible thoroughly to explore all of the culture deposit under this rock within the brief space of time then at the disposal of the researcher. The débris dug up from the trench along the foot of the rear wall was carefully troweled over, to be sure, and the results proved most satisfying, as just explained, However, the accumulations of soil, two or three feet from the wall or nearer the line of shelter, remained untouched and there was, therefore, no telling as to what they might contain.

Unfortunately, the misgivings entertained by the investigator on leaving the place, namely, that some curio hunters might chance along and dig up all of the dirt floor, men with no capacity for scientific requirements and with not the least concern for any such data as are derivable from the assemblage of artifacts and their relative position in the subsoil, were found to be only too justified. For when, in the fall of 1923, after a lapse of two years, he re-visited this station, he saw at a glance that its culture deposits had been literally turned topsy-turvy, leaving not even a trace of his trench of two years ago. Knowing, however, the heedless practices of collectors and their way of skipping things, he at once set to work scrutinizing every cubic inch of the débris thus disturbed. The results were truly gratifying inasmuch as he succeeded in salvaging a considerable quantity of objects of primitive origin. These the relic-hunters had either not recognized or intentionally tossed aside, deeming them of no value.

Though all data had been destroyed, these remains, such as they were, helped to complete somewhat the evidence already obtained. In the following is presented a detailed account of the articles recovered.

A bannerstone, of close-grained slate, six inches long by two inches wide and more than an inch in thickness, rudely blocked out and pecked, in first stage of manufacture, then rejected, it seems, because of a flaw in the material. A tally-stone, possibly used as a sinew dresser, of close-grained slaty material, bluish-black, rectangular in shape, three inches long by one inch wide and one-third of an inch thick, showing four notches each on opposite sides. One-half of a bannerstone of the butterfly type, of bluish slate. The fracture is old and much weathered. Large numbers of winged or problematic forms like this, of heavy slate and mostly in an unfinished state, have been found near Columbia, on the Susquehanna. Several netsinkers, that is, flat oval pebbles, notched on opposite sides, about two inches long by one and a half wide.

Many sherds, decorated with parallel lines, combined with cord-markings. Plain sherds, probably belonging to two pots because of varying thickness and color, some being of light-colored, the others of reddish clay. Not a few of the sherds were ornamented with dots, stamped in parallel lines, and many were charred by fire. Their average size was that of a quarter.

One perfect triangular point, of chert, an inch long; a slender, long-stemmed point, of flint, one and a half inches long; fragments of three points, two of chert and one of quartzite. Chips of black flint, milky quartz, gray and black chert, quartzite and yellow jasper. A small quantity of bones, presumably cervine, bones of a large bird, possibly wild turkey, and particles of unio shells were distributed throughout the débris.

When we come to decipher the various signs revealed to us by this station, we find that they tell an interesting tale, albeit one not in any sense startling or even differing substantially from that of any other rock shelter. Yet there can be no disputing the fact that this place was one of superior archaeological significance and this on the strength both of quantity and variety of primitive objects noted. In comparison with the others already discussed, it stands most assuredly in a class by itself.

Of finished stone implements or arrowheads the writer recovered no less than twenty-one, many of them perfect, and some thirty additional points are said to have been dug up by relic-hunters. Fragments of earthenware were unusually plentiful, not to mention a multitude of sherds and decorated pot rims found, it is claimed, by collectors rummaging the deposits under the rock. Altogether these may represent the remnants of something like ten jars. The chips of various material distributed throughout the subsoil bespeak, of course, the fashioning of stone tools or a small workshop.

As for the paucity of bones at this station, in the midst of a region that once teemed with game of many sorts, it is something which at first blush appears rather strange. As already hinted at, however, this circumstance is readily explainable, being in reality a cogent argument in favor of the theory that this spot was a fishing site. Nor can we account for the scantiness of this kind of remains by supposing that they had been taken away from the shelter while it was being despoiled. Yet, oddly enough, no fish hooks were discovered, neither was there any vestige of fish bones, these having, no doubt, decayed long since. The black soil, constituting most of the débris, bears witness to numerous camp fires, kindled intermittently in the lapse of what may have been untold centuries.

In view of the evidence presented by this rock, we may be justified in assuming that it was once a favorite trysting-place of the prehistoric anglers for a radius of many miles. At all events, the large number and variety of objects here left behind would seem to testify to frequent visits on the part of the savages. But as there is little probability that it was ever permanently occupied, we may presume that none of these visits lasted more than a couple of days, since rock shelters in general appear to have been mere stopping places, resorted to by the Redman for but a brief sojourn, either while on the chase and in pursuit of food or while in transit from one locality to another. In all probability several well-worn paths converged near this rock and one of these, presumably, crossed the mountains intermediate between the Lehigh and Wyoming Valley.

A SUMMARY OF CONCLUSIONS.

In the foregoing there has been given a somewhat exhaustive account of all the prehistoric rock-retreats observed in and near Wyoming Valley. Places of this description were, so to speak, Nature's gift to primitive man, almost certain to be utilized, for we know that in all ages and climes he eagerly seized upon them as ready-made habitations. Our studies in this field within the area under review have brought out many an interesting fact serving to elucidate some phase of aboriginal existence.

Before analyzing the results of this survey by way of recapitulating some of its salient features, the investigator wishes to stress the point that none of the shelters, excepting the one on the Lehigh, appeared to have been of any particular significance. They were all of them inferior, archaeologically, and not what one would have expected considering their favorable situation near one of the centres of aboriginal life. The Lehigh fishing site, on the other hand, though more than twenty miles distant, afforded abundant evidence to the effect that it had once been a noted rendezvous of the redskins, who were doubtless attracted hither by the prospects of rich catches.

Comparing the rock shelters of Wyoming Valley with those of other hilly tracts, such as the areas covered by the Shawangunk and Ramapo mountains, the limestone districts of Sussex County, N. J., and the country round about Port Jervis, N. Y., there is no mistaking the fact that while the former are structurally fully on a par with any of the latter, they yet proved, on the whole, inferior if judged by the token of archaeological contents and these, most assuredly, form after all our only criterion when we come to estimate the relative importance not only of sites like these but also of others, such as camps and villages. In face of this the conclusion seems almost inevitable that the shelters in and near Wyoming Valley were not so generally made use of as those of the regions above mentioned.

SOME TELL-TALE MARKS.

Each of the stations here discussed proclaims its little story to those who can read the signs aright. This tale is roughly identical for all of them because of the similarity of the refuse left behind under the rocks. The clues deducible from its interpretation are of the simplest kind, having to do with creature comforts and the bare necessaries of primitive existence. Thus, the old fireplaces together with pottery fragments and the bones of animals hint at cooking, while the slivers of flint and other material, scattered through the débris, serve to denote the manufacture of stone artifacts. Yet, here as elsewhere, these sheltering rocks were no more than temporary abiding-places resorted to under certain circumstances for the sake of convenience. Their occupants were always transient, being either hunters, miles away from the more permanent homesteads, or, perchance, whole families traveling from one place to another. For the Redman was not *"glebae adscriptus,"* but given to shifting his quarters in obedience to the urges of his precarious mode of life.

A SINGLE CULTURE HORIZON.

Of all the conclusions legitimately to be drawn from the evidence extant, none is more generalized or of broader import than the fact of a single culture horizon so uniformly demonstrated by all of the nine rock sites under consideration. To explain more fully, none of the stations gave any indication of more than one culture stage, that is to say, in each of them the entire relic-bearing stratum was continuous or representative of a homogeneous culture, identical in all cases. Nowhere was it divided by a neutral zone or band of earth containing no prehistoric refuse into two distinct strata, the lower or more ancient one illustrating an older industry without pottery and the upper one, containing pottery remains, typifying the latest culture stage achieved by the aborigines at the time when they first came in contact with the whites.

In this connection it is to be pointed out that Mr. M. R. Harrington in his rock shelter work discovered at least one station testifying to two distinct horizons of culture. (Vide his report on Finch's Rockhouse, near Armonk, Westchester County, N. Y., in Hudson-Fulton Publication of the American Museum of Natural History). Again, the writer also encountered what may have been sites of this kind, among them Moody's Rock, near Newton, Sussex County, N. J. (Vide bulletin 13, Geological Survey of New Jersey; also Hudson-Fulton Publication). At Finch's Rockhouse, in particular, there was a well defined stratum of earth containing no relics, intermediate between two relic-bearing layers and deposited in the interval of two successive occupations. There is, of course, no sure way of telling how long it took for this band of earth to accumulate and, for all we know, its formation may have required centuries during which Finch's Rockhouse remained apparently unoccupied.

In the light of what has just been said, it would seem that the stations north and south of Wyoming Valley can lay no claim to any great antiquity, dating back, say, a thousand years antecedent to the white man's arrival. On the contrary, judging by the scantiness of their archaeological contents, they may have been in use for a few centuries only, but in the absence of definite records this is a moot problem and one quite incapable of solution.

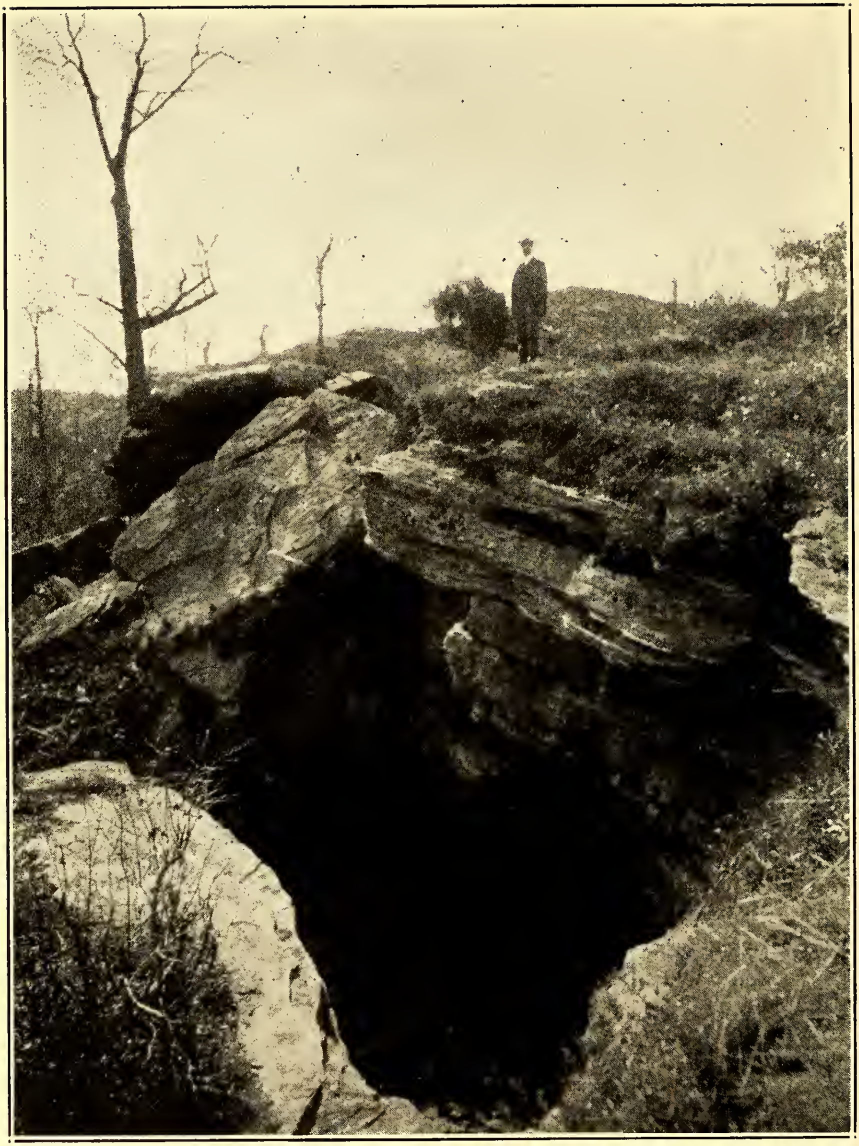
THE KELLY RIDGE STATION.

The nine rock shelters just discussed were all of them located during the research work of 1923. Strictly speaking, only one of them proved to be of some significance, if judged by the variety and quantity of relics embedded in its cultural deposits. This, the Anglers' Haunt on Lehigh River, afforded unmistakable evidence of having been frequently resorted to.

Still, there is no denying that even this station, relatively important though it is, does not compare favorably with any of the larger sites of this description explored by the writer in certain hilly districts of the States of New York and New Jersey, notably the Ramapo and Shawangunk mountains.

A condition of affairs such as this appears all the more puzzling or anomalous when we consider that many of the above nine shelters were rather attractive, being well formed and close to water, to say nothing of the archaeological significance of the area under review.

The discovery of a really first-rate aboriginal rock abode was not to be made until the fall of 1924, at which time the writer returned to Wilkes-Barre with a view to supplementing his archaeological studies. While investigating the district back of Indian Hill, or, more precisely, the high tract of land on the northern slope of Wyoming Mountain, he obtained

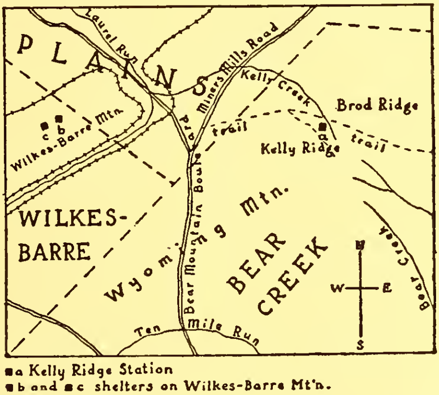


ROCK CABIN, ON KELLY CREEK, KELLY RIDGE

some vague information relating to the occurrence of a big rock shelter somewhere along the upper reaches of Kelly Creek. Not being able to secure a guide, he determined to make a thorough search confident of locating the place in question. And in this he was not to be disappointed, for though unsuccessful on his first trip, he struck it on the next, actually walking into it along the shortest possible route with not a step wasted.

SITUATION OF SITE.

The topographic maps of all this territory, embracing hundreds of square miles, are inaccurate and antiquated to a degree, showing none of the later highways and reservoirs. Orographically, the survey has been still more unreliable and the contour lines appear to have been largely guessed at. To such an extent is this true that were our rock shelter placed where it belongs, these lines would be found to be wholly at variance with what actually exists in the locality where it occurs. Nor are the whereabouts of Kelly Creek flowing past this shelter given with any degree of exactness.



Map showing situation of Kelly Ridge Rock Shelter. Scale—½ inch to a mile.

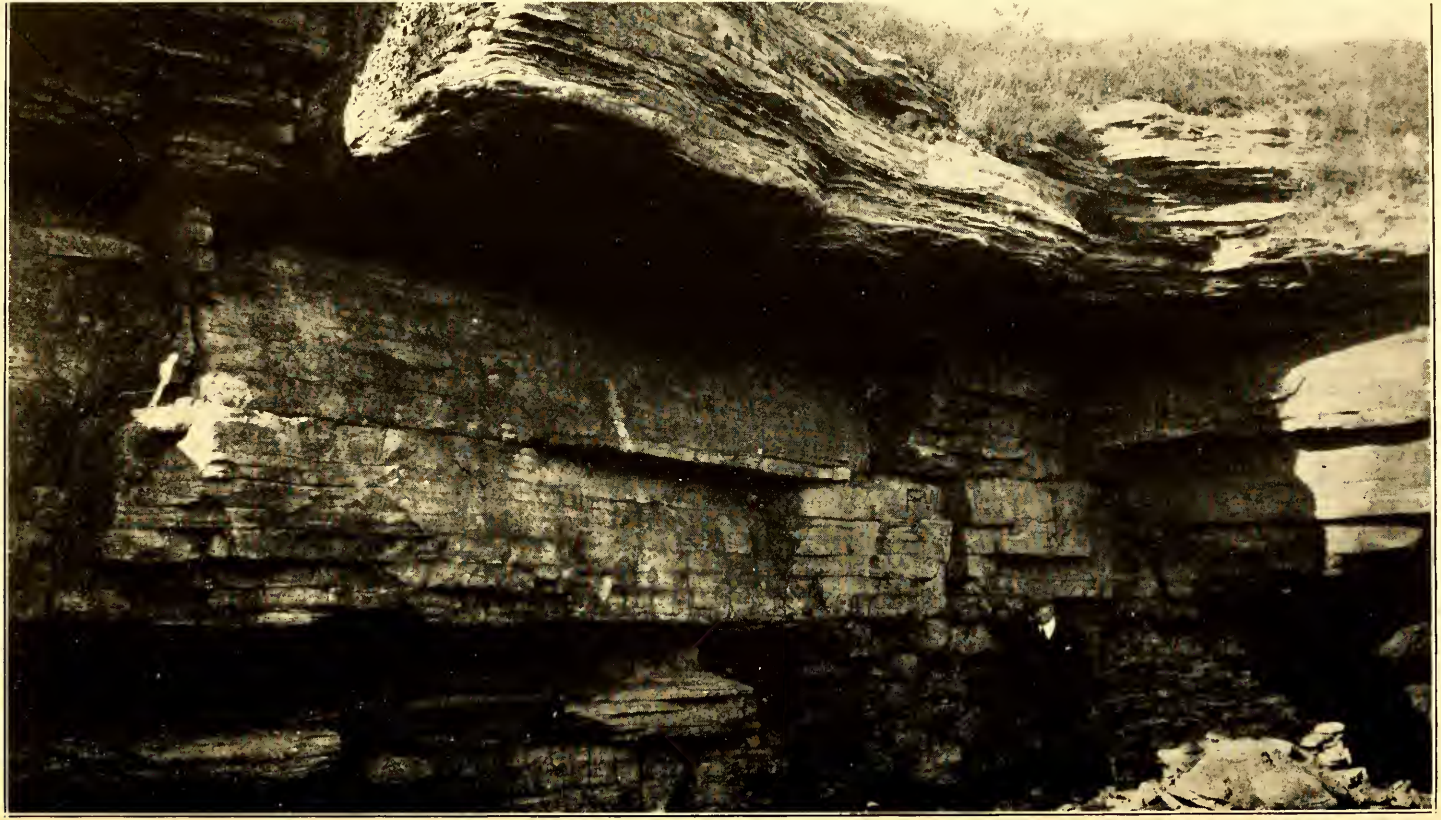
Under these conditions the researcher was compelled to make a chart of his own, retaining only such features of the map as may be supposed to be approximately correct, namely, the general trend of Indian Hill and Wilkes-Barré Mountain, respectively northwest and west of the shelter, the pass between them, i. e., Laurel Run Narrows, and the course of Laurel Run.

The station under consideration lies on the northeastern flanks of Wyoming Mountain. Its distance from Wilkes-Barré is five miles west by north in an air line or seven miles by highway. The road from Miners Mills approaches it most closely, passing about a mile to the north of it and joining Bear Mountain Boulevard a mile south of the Narrows. From this road the shelter may be reached by two trails. One of them starts at a point where it crosses Kelly Creek, following the stream for some two miles going due south. The other, much better underfoot and well trodden, branches off Miners Mills road about half a mile northeast of its junction with Bear Creek Boulevard and is only three-quarters of a mile long.

Topographically, the region amidst which the rock shelter is situated is a sort of ascending plateau, attaining elevations of about two thousand feet in the direction of Bear Creek, while Bald Mountain, adjoining Wyoming Mountain a couple of miles farther east, reaches a height of 2140 feet above sea level. This plateau, now almost treeless though covered with scrub oak, is gullied here and there by shallow depressions that are skirted by low rock outcrops.

As regards the immediate surroundings of the rock shelter, it lies in a broad, shallow vale, at the headwaters of Kelly Creek, about 1880 feet above the tides. The valley is bounded on the east by Broad Ridge, 1980 feet high, and on the west by Kelly Ridge of about the same height and forming one of the summits of Wyoming Mountain. This ridge terminates abruptly in a long rock escarpment, jagged and weather-worn, that dominates Kelly Creek, flowing along the bottom of the vale.

The scarp overlooking this high-level gully, is, as just re-



ROCK CABIN ON KELLY CREEK, KELLY RIDGE

marked, extremely rugged. Though nowhere more than twenty-five feet high, it can be safely scaled in but a few places, for what with its steep faces and the huge chunks of fallen rock littering its base in chaotic disorder and forming deep caverns and fissures, one's passage is impeded at every step.

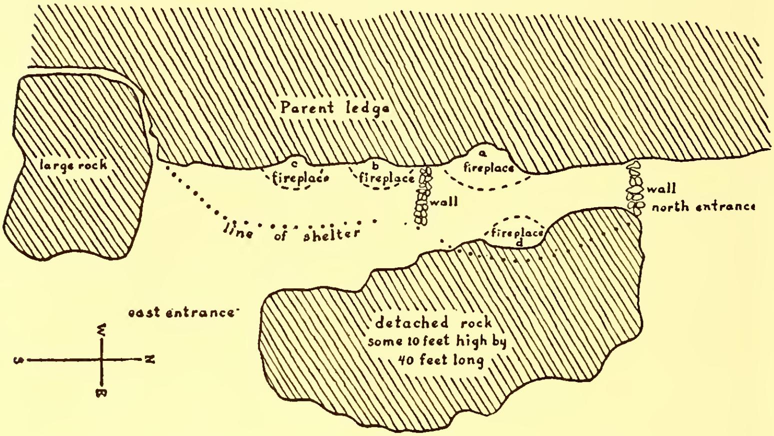
DESCRIPTION OF THE SHELTER.

In this labyrinth of shattered rock masses, giving rise to chasms and bizarre formations, there occurs what is called the Kelly Ridge rock shelter. To describe it accurately is no easy matter, for it is a complicated structure, consisting of several compartments, viz., a combination of an ordinary shelter or overhanging ledge with a cave-like adjunct.

Here there is a cliff of Pottsville conglomerate, rising sheer to a height of about twenty-five feet, with a beetling brow twelve feet above the floor and jutting out from six to twelve feet, the maximum extension being at the right-hand section of the covert thus formed. To the left, facing the parent ledge, it is protected laterally by a great block of rock, and in front, some twelve feet away from the ledge, there is another much larger mass of rock, twenty-five feet long by ten feet high, that at some time had become detached from the cliff, snugly enclosing most of the sheltered space but leaving a broad entrance between itself and the lateral boulder.

Over toward the extreme right this detached mass approaches the face of the cliff to within six feet, with the upper portion of the latter resting upon it. The result is a small cave-like formation, completely roofed over, adjoining the sheltered portion to the left and open at the extreme right, where there is a narrow passage between the cliff and the block of rock fronting it. The total length of the shelter is more than fifty feet and being so remarkably well ensconced, it was bound to attract the Redman's attention, as evidenced by the multitudinous memorials he has here left behind.

The accompanying diagram of this place will serve far better than words to convey an exact idea of its general configuration, showing, as it does, the position of the lateral and frontal boulder as well as the relative dimensions both of the rock shelter portion and the cavern. Kelly Creek in front is about one hundred and fifty steps distant and could, doubtless, always be depended upon for an ample supply of water, it being a stream that hardly ever dries up entirely even in these days of wholesale deforestration and certainly flowed good and strong in Indian times, when a heavy growth of timber tended to conserve all surface waters.



Ground plan of Kelly Ridge Rock Shelter. Scale—1 inch to about 6 feet. Height of parent ledge about 25 feet. Length of shelter about 50 feet. Width from 6 to 16 feet. Roof about 12 feet above floor.

CONDITIONS FOUND.

Taking the first close view of the interior of this place, it was at once apparent that it had not been left in its original condition. Assuredly, there were innumerable tell-tale marks bespeaking frequent visits by people from far and near. It was evidently the objective point of many persons, like berry pickers, woodsmen, hunters and others and as such it had presumably been resorted to time out of mind. And, to be sure, on inquiry it was learned that it had indeed been a favorite rendezvous of all such for more than a century. That this must have been the case was amply borne out by the evidence at hand, for aside from the fact that its surface was littered with rubbish of every description, including cooking utensils, tin cans, pails and broken bottles, this refuse was seen to extend far down to a depth of more than a foot.

Most likely, the enclosing rock walls still presented the same aspect as at the time of the Redman, except in so far as their faces were bedaubed with paint and covered with scores of names. Most likely, also, there had been no blasting. However, the most striking feature of the white man's presence was afforded by two substantial rock walls, one of these built at the extreme right of the covert, closing up the passage to the cave-like portion, while the other was in its centre, at right angles to the face of the cliff. This latter piece of masonry had to be removed in the course of the excavation.

As just stated, the original surface was found to be overlain by a stratum of earth and stones, containing numerous articles of modern make. This layer was on an average twelve inches thick and in places as much as eighteen inches. Consequently, the aboriginal remains occurred throughout at unusually low levels, that is, more than a foot beneath the present aggraded surface. All of this new deposit was evenly distributed through all parts of the shelter, forming a level floor. Being so thick and naturally barren of all traces of former Indian occupancy, the initial impression gained when digging through it was that this spot was devoid of any and all archaeological significance. It was only after penetrating through this accumulation that the first signs of a prehistoric character came to light.

THE WORK OF EXCAVATION—RIGHT-HAND SECTION.

In the task of investigating this station, the best method seemed to be to proceed by a series of transverse trenches, beginning at its extreme right in what has been referred to as its cave-like adjunct. Accordingly, a trench, designated trench 1 on figure 1, was dug along the stone wall across the northern entrance (see figure 2), which was left standing, it being probably outside the zone of aboriginal deposits.

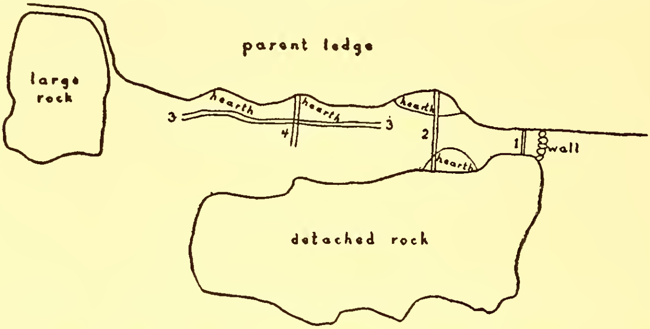


Fig. 1. Kelly Ridge Cabin. Diagram showing transverse trenches 1, 2 and 4. Longitudinal trench 3—3.

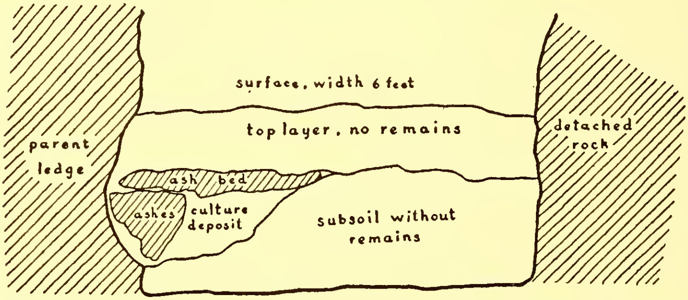


Fig. 2. Kelly Ridge Cabin. 6-foot cross section of transverse trench in extreme right-hand portion.

The top layer to a depth of more than twelve inches was composed of sand and rocks mixed with a heterogeneous assortment of modern rubbish. Throughout all this mass there was not a vestige of any remains revealing the erstwhile presence of the Redman and, as just stated, there began to arise a suspicion that this place had never been haunted by him.

At length, at a depth of about fourteen inches, the rubbish gave out and dirt of a darkish hue, quite dissimilar to that of the overlying stratum commenced to appear. Digging farther down, it was seen to be a bed of ancient ashes, about five inches thick, extending from the ledge toward the detached boulder on the opposite side, but gradually thinning out half way across. This augured well and, indeed, there soon came to view the first sure signs of a prehistoric character in the shape of pottery fragments embedded in the charcoal.

Another deposit of blackish soil, apparently indicating a firepit was noted close to the ledge, penetrating downward to a depth of about twenty-six inches and containing heat-cracked pebbles, potsherds, chips and bones. The dirt adjoining it in the direction of the boulder was likewise discolored through the action of fire to a depth of about two feet. It yielded additional sherds and bones but was limited in extent inasmuch as it covered less than one-half of the six-foot space between ledge and boulder. The remaining portion of the subsoil near the latter was a mixture of large stones and earth, devoid both of the white man's refuse and of that of the Indian.

Eventually, this system of parallel transverse trenches came to cover a space ten feet long, with the conditions remaining essentially as they were at the start, namely, there was always a deposit of dark soil with its contents of fire-split stones, sherds, chips and bones, this deposit being deepest along the rear wall but gradually vanishing toward the detached boulder.

TRENCH 2.

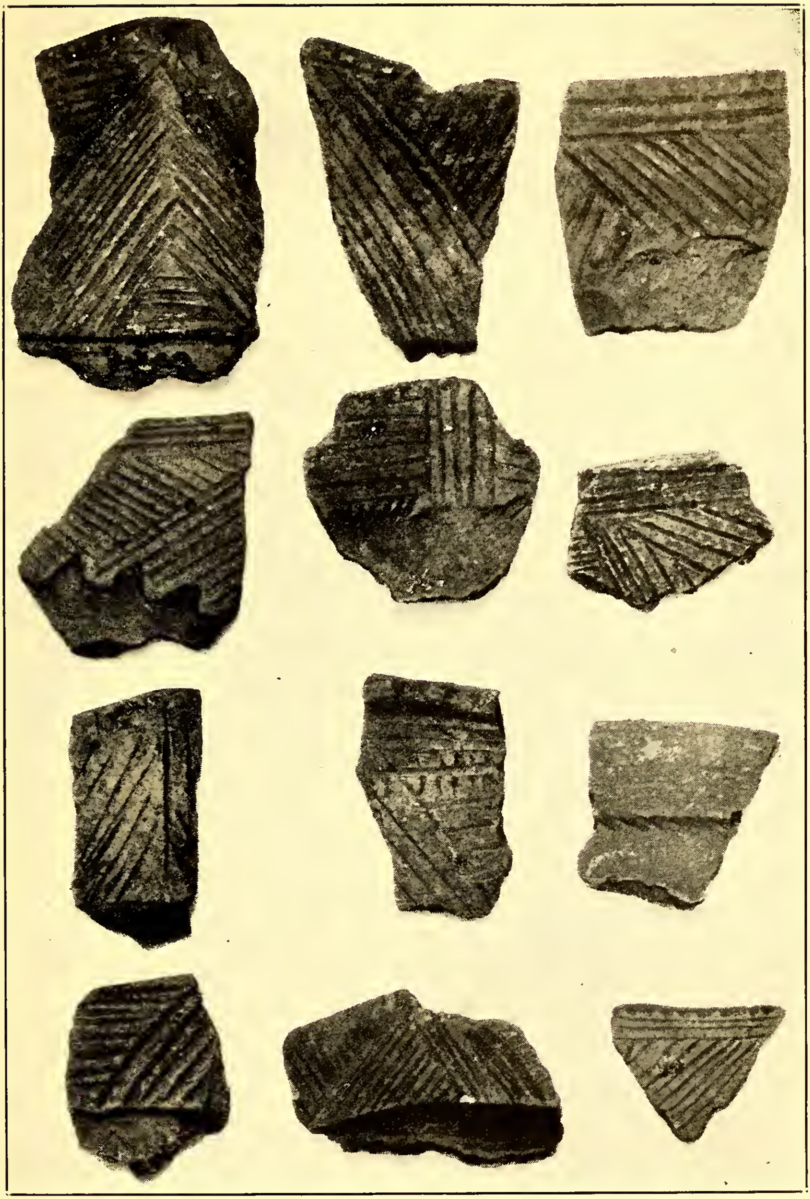
The narrow cave-like compartment having been dug up, the adjacent portion had to be trenched over. A glance at the accompanying ground plan of the shelter shows that at the point now reached it widens considerably, viz., from six feet to about twelve feet. This meant slower progress but possibly also better finds. No sooner was this section reached than there was noted a change in the distribution of the culture-bearing strata and the latter proved to be much richer in cultural remains, but of this presently.

Removing again the superincumbent accumulation of rocks and soil, here about fourteen inches thick, the layer of ancient ashes was now seen to be continuous, that is, stretching all the way from the face of the ledge to the detached boulder. This layer presented itself as a dark band of a uniform thickness of some six inches, and it enclosed heatstones, fire-cracked pebbles, pieces of pottery, chips and bones.

Nearest the ledge there was a heavy deposit somewhat discolored through its admixture with charcoal and penetrating to a depth of almost two feet beneath the above band of ashes or to more than three feet below the present surface. This depth it seemed to maintain for some eight feet along the rear wall or face of the cliff, whence it gradually thinned out toward the centre, in the direction of the boulder.

Close to the boulder, beneath the continuous layer of black soil, another deposit of culture-bearing dirt was noted, dipping down fully twenty inches or to a depth of more than three feet below to-day's surface. As before, its limits were clearly marked, in that its dark color contrasted with the lighter shades of the surrounding subsoil.

Obviously, these two deposits (see figure 3), reaching far down into the subsoil near ledge and boulder, mark the site of fireplaces or pits, dug by the prehistoric occupants of this shelter. And this presumption is supported by the fact that both of them occur within and in front of natural niches, denting the face of the rocky walls. Recesses like these the troglodytic savage would invariably make use of as a con-



RIMSHERDS FOUND IN KELLY RIDGE SHELTER

venient place for the site of his hearth. They are shown on the diagram at the points marked a and d.

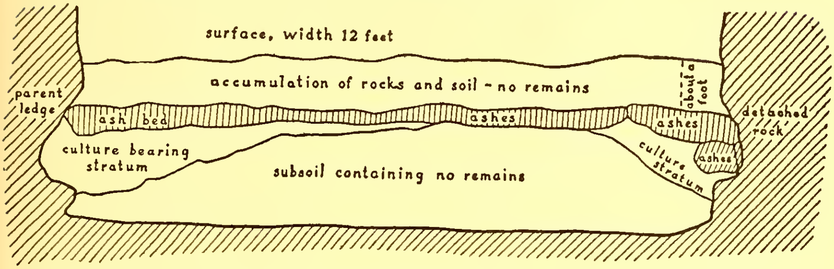


Fig. 3. Kelly Ridge Cabin. 12-foot cross section of transverse trench between fireplaces a and d.

Inhumed in the blackish dirt of these pits was found a varied assortment of objects assignable to the Redman. To enumerate, pit a contained four triangular arrow points of perfect workmanship, of chert and flint, together with several broken ones, one arrow shaft dresser, four netsinkers, a score of chips, about a hundred potsherds and dozens of mammalian bones.

Pit d was rather less prolific in remains in that it yielded not a single arrow point, but by way of compensation it contained a large quantity of potsherds, either plain or decorated, along with one netsinker, chips and bones. In both fireplaces there were numerous pebbles, smoke-stained and cracked, plainly showing the action of fire.

The subsoil intervening between the two pits beneath the band of ashes, was practically destitute of cultural refuse, affording nothing but a few chips and bones, buried quite superficially. It was to all appearances a piece of undisturbed ground, more rock than soil.

TRENCH 3.

By this time the exploration had reached the widest portion of the covert where it comprises a space thirty feet long by sixteen feet broad, less than half of it roofed over by the projecting cliff. Cross-wise trenching was now abandoned as the better plan seemed to be to dig lengthwise, in other words, to excavate longitudinally along the base of the rear wall, beginning to the left of fireplace a and continuing toward the lateral boulder, previously mentioned.

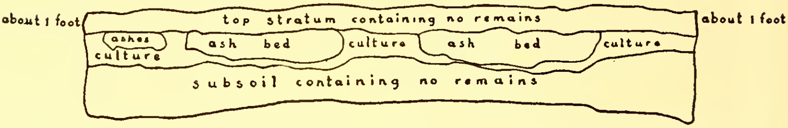


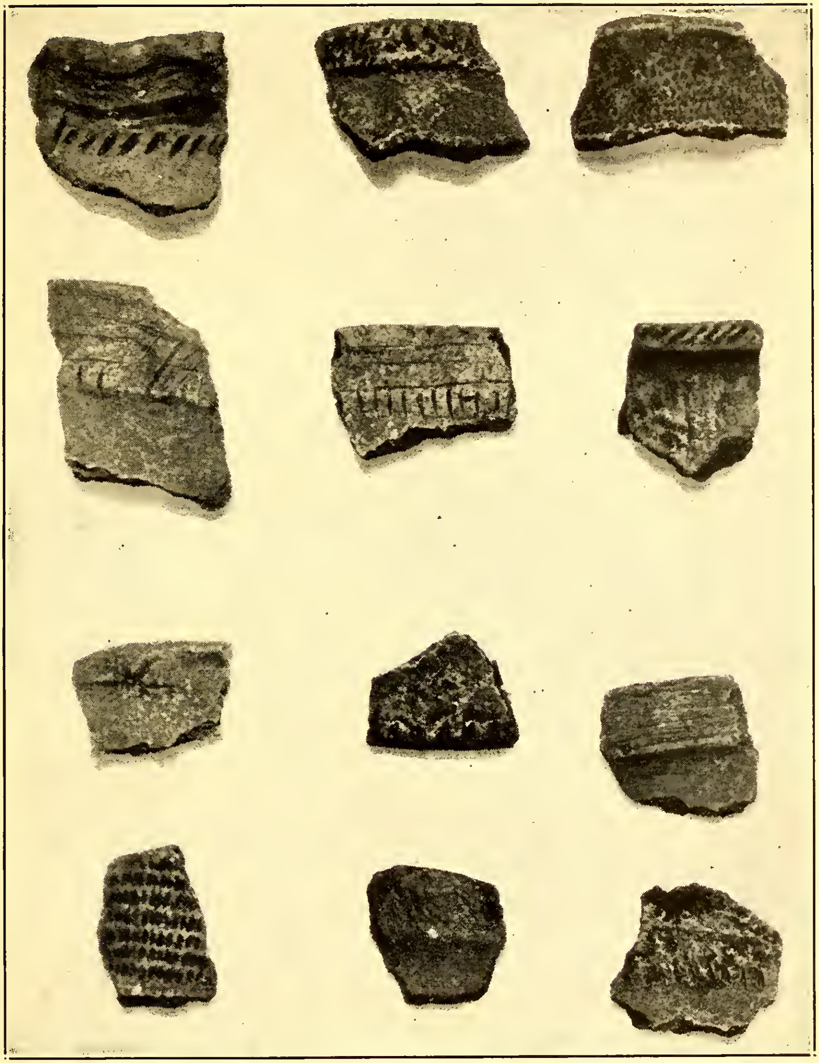
Fig. 4. Kelly Ridge Cabin. Vertical section of 25-foot longitudinal trench along rear wall to the left of fireplace a, including fireplaces b and c.

This trench came to be some twenty-five feet long by six feet wide and four feet deep. It was a laborious task for athwart its course was the stone wall, eight feet long, composed of about ten tons of rock, all of which had to be taken out of the way, to say nothing of the heavy accumulations on top, deposited since the Redman's departure, a layer enclosing stones without end, often tightly wedged in and weighing, some of them, a hundred pounds or more. Needless to say, that this mass, averaging about sixteen inches in thickness, was, as usual, charged with quantities of modern refuse.

Its removal laid bare a different sort of soil. For one thing, it was of a darker color, indicative of fires and bespeaking, withal, the old level of Indian occupation of centuries ago.

Quite naturally, the culture deposit immediately to the left of fireplace a was seen to be sloping up toward the layer of darker soil that once formed the original surface of the interior of the shelter. It was comparatively shallow and by actual measurement it did not exceed sixteen inches in thickness as against twenty-four inches in the pit.

Farther on to the left there was a heavy bed of fire-stained soil, some six feet long, slanting down about two feet near the rear wall and extending several feet away from it at a diminishing depth. This was, doubtless, the site of another fireplace, occurring, as before, within and in front of a recess at the foot of the cliff.



RIMSHERDS FOUND IN KELLY RIDGE SHELTER

THE FIREPLACE TRENCH (NO. 4).

In order to ascertain more fully the conditions existing at this pit, marked b on ground plan, a ten-foot transverse trench was dug (see figure 5). The cross section showed a band of dark soil about a foot thick, extending from b the whole length of the trench. It overlay a deposit, about two feet thick, also consisting of dark earth, its lowest limits being four feet below to-day's surface.

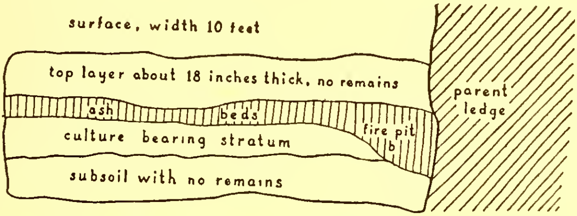


Fig. 5. Kelly Ridge Cabin. Ten-foot transverse section through longitudinal trench at fireplace b.

Many objects were found in the pit, to-wit, three triangular arrow points, two netsinkers, an unfinished sandstone blade, possibly a reject, chips, pottery fragments, mammalian bones and a small quantity of broken shells, identified as belonging to the brook mussel (unio complanatus), the black mussel (mytilus edulis Linn.) and the land snail (helix alternata).

The strata exposed by the transverse trench contained chips and bones, fragments of several clay pipes of modern manufacture, and scores of potsherds, many of them beautifully decorated with incised lines, showing the chevron design, impressed on a heavy collar, a type always reminiscent of Iroquoian influence.

THE LONGITUDINAL TRENCH CONTINUED.

But to return to the longitudinal trench. In the soil adjoining pit b to the left there came to light a broken arrow point, chips and bones along with a quantity of pottery pieces, none of them buried deeper than fifteen inches beneath the bottom of the top stratum, found overlying the Indian level.

A large accumulation of blackish earth was encountered opposite another niche at the base of the cliff, denoting the site of an additional firepit, designated as c on the ground plan (see also figure 4). It was quite extensive, being six feet long by nearly three feet thick. The archaeological harvest here reaped consisted of two triangular arrow points, along with several broken ones, two netsinkers, one drill, one scraper of triangular shape, an artifact resembling a "patter," chips, bones and fragments of earthenware.

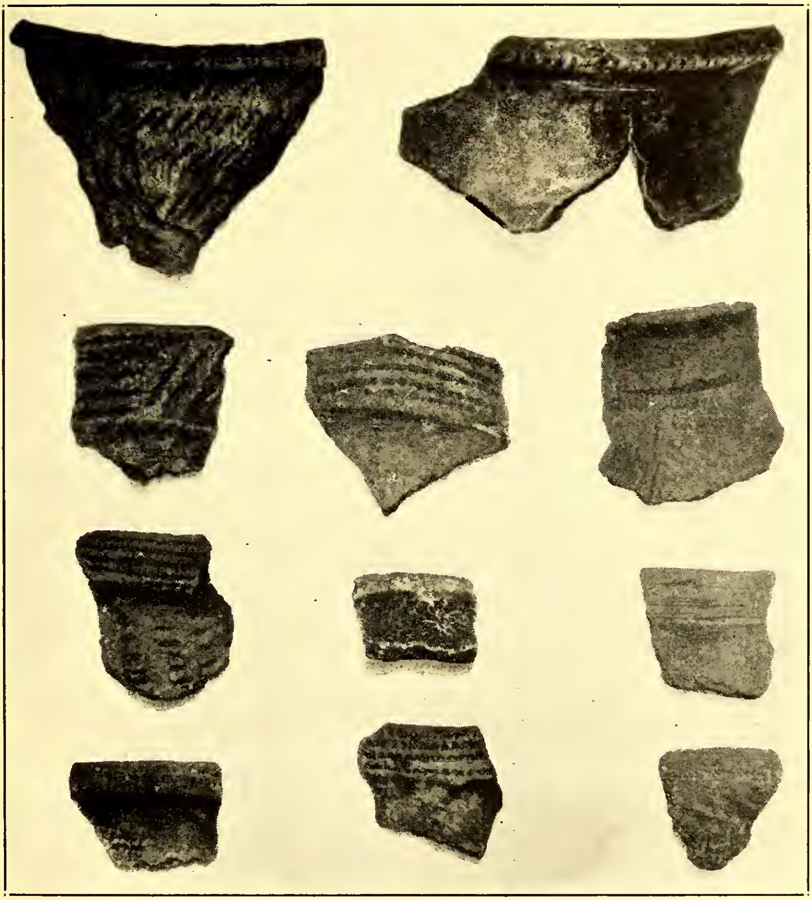
A smaller deposit of culture-bearing dirt was noted near the end of the trench. It yielded many finely decorated potsherds, bones, the claw of a bear and pieces of the carapace of a box turtle.

THE SECOND LONGITUDINAL TRENCH.

A second longitudinal trench, about four feet wide by four feet deep was dug parallel to and directly adjacent to the first one. While following the line of shelter, it was only partly protected by the overhang. A careful search of the deposit resulted in the discovery of one netsinker, a leaf-shaped scraper, of yellow jasper, a broken celt of polished sandstone, with the beveled edge intact, two broken arrow points, chips, bones, potsherds and a piece of a clay pipe of white man's make.

This practically finished the excavation save for a patch alongside the lateral boulder and a narrow strip between the lengthwise trench and the frontal boulder. However, no additional testimony of any great importance seems likely here to be afforded.

At no stage of the exploration had there been any indications that curiosity hunters had ever been at work here, digging up remains. However, there can be no question that the strata beneath the modern accumulations had been disturbed to some extent by white men digging fireplaces of



RIMSHERDS FOUND IN KELLY RIDGE SHELTER

their own. This may conceivably have resulted in the displacement of many an object of Indian origin as well as in the further breaking up of pottery fragments.

SUMMARY OF ARTICLES UNEARTHED.

A study of the multifarious remains recovered from the culture layers in the Kelly Ridge rock cabin leads to many interesting conclusions. While these will be set forth in the following chapter, special attention is here directed to the fact that most of the remains found were broken and of an inferior type. Thus, objects of the rarer sort were entirely absent and as for pottery, there were, to be sure, hundreds of fragments but nothing whatever in the way of a complete jar. Nay, all this earthenware had been so hopelessly shattered as to preclude any thought of ever again putting it together, so as to form if only one whole pot.

The most perfect specimens of aboriginal handiwork were, as usual, the arrow points, all of them triangular, but, then, these are among the commonest of artifacts, being, in fact, practically ubiquitous.

Following is a list of all the remains exhumed at this station:

9 perfect triangular arrow points, chert or flint, each about an inch long.

Half a dozen broken ones.

A leaf-shaped scraper, of yellow jasper, two inches long.

A thick triangular scraper, of chert.

A drill, of chert, one and a half inches long.

An arrow shaft dresser, of close-grained sandstone, two inches long.

An artifact, two inches long, with blunt point and bulb-shaped base, possibly a "patter".

An unfinished blade, five inches long, oval, of polished sandstone, broken up into three pieces.

A celt, broken into four pieces, four inches long, of close-grained polished sandstone, cutting edge beveled and intact.

8 netsinkers, made of water-worn flat pebbles, notched at opposite sides.

Scores of chips, of chert, flint, quartz, quartzite and jasper.

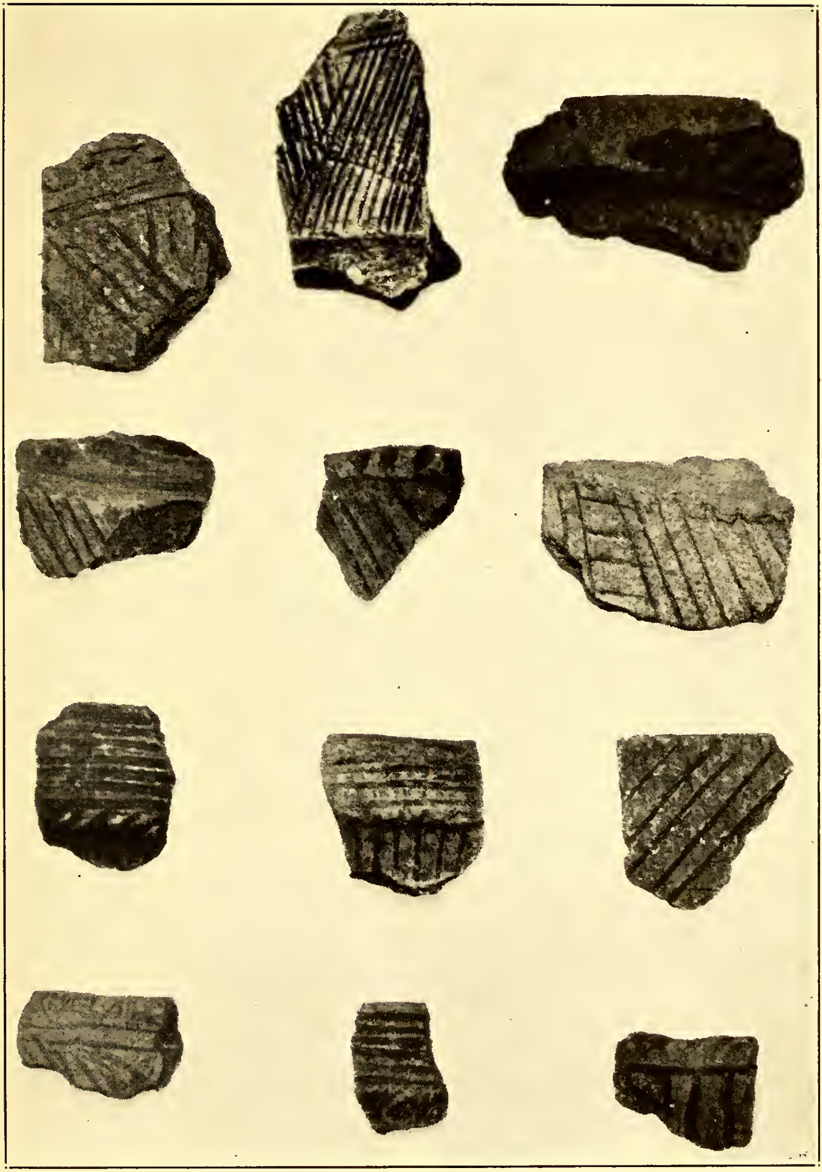
Bones of the deer, among them a jaw and five single teeth, elk and bear bones, the claw of a bear, muskrat teeth, bones of wild turkey and snapping turtle (carapace), shells of brook and black mussells and remains of the land snail.

The pottery showed a mingling of Iroquoian and Algonkin types. Some of the sherds were decorated with parallel, incised lines, often exhibiting the chevron or zigzag design; others were fabric-marked, or showing dotted lines, stamped or punched. There were pieces revealing the square or overhanging collar, the constricted neck and the flaring lip. There were more than a hundred rim sherds, many of them indented or notched, over two hundred cord-marked sherds, averaging the size of a fifty cent piece and belonging to many pots, also hundreds of plain pieces. The rims appear to belong to about eighty jars. The clay used was reddish-brown, yellow or grey, of varying thickness, color and material, often fire-stained, and tempered with shells or ground quartz. In association with all this occurred part of the stem of an Indian earthenware pipe as well as fragments of old-fashioned clay pipes, possibly of Colonial date. None of these objects lay less than fourteen inches below the surface and some were four feet deep.

THE INTERPRETATION OF THE REMAINS.

The assemblage of aboriginal objects met with at Kelly Ridge rock cabin, permits of a few general inferences to be drawn therefrom. On the whole, the character of the culture it revealed corresponds closely with what was found at the other stations, the only point of divergence being the enormous disproportion between its pottery remains on the one hand and all the rest of its cultural contents on the other.

In attempting to analyze the cultural aspect of this cabin,



RIMSHERDS FOUND IN KELLY RIDGE SHELTER

there is presented to our consideration a group of five telltale marks, each of which is eloquent of some phase of the savage's life under this rock, namely, chips, stone tools, bones, pottery and firepits.

As for the evidence offered by chips or flakes and chunks of raw material, all these tell a story of implement-making, but, being few in number, they do not suggest a workshop of any size.

The stone tools, of course, betoken the presence of males. They were represented almost exclusively by arrow points, all of them of a triangular shape, i. e., a type characteristic of the Iroquois. This is significant, inasmuch as it discloses the influence of Iroquoian culture acting upon the ancient dwellers at this rock, whatever may have been their tribal affiliations.

Nor did bones occur in any considerable quantity. So far as identified, they belonged mostly to the deer, for venison was the Redman's favorite meat. Those of the bear and elk were also found. Remains of this class are indicative of the chase and they tell us something of his diet. Invariably, the bones had been split open and this was done, no doubt, for the sake of extracting the marrow, to which he was quite partial. Nor did he disdain mussels or snails for their fractured shells were encountered here and there in the culture débris.

Speaking of the pottery, it suggests at once the whilom presence of squaws at this cabin. Aside from that, the profusion with which it occurred was something to be marveled at. Examination of the numerous fragments made it plain that no less than a hundred jars had been broken up, more than eighty of which could be traced by the decorated rim sherds. As in the case of the triangular arrow points, much of it gave evidence of Iroquoian influence.

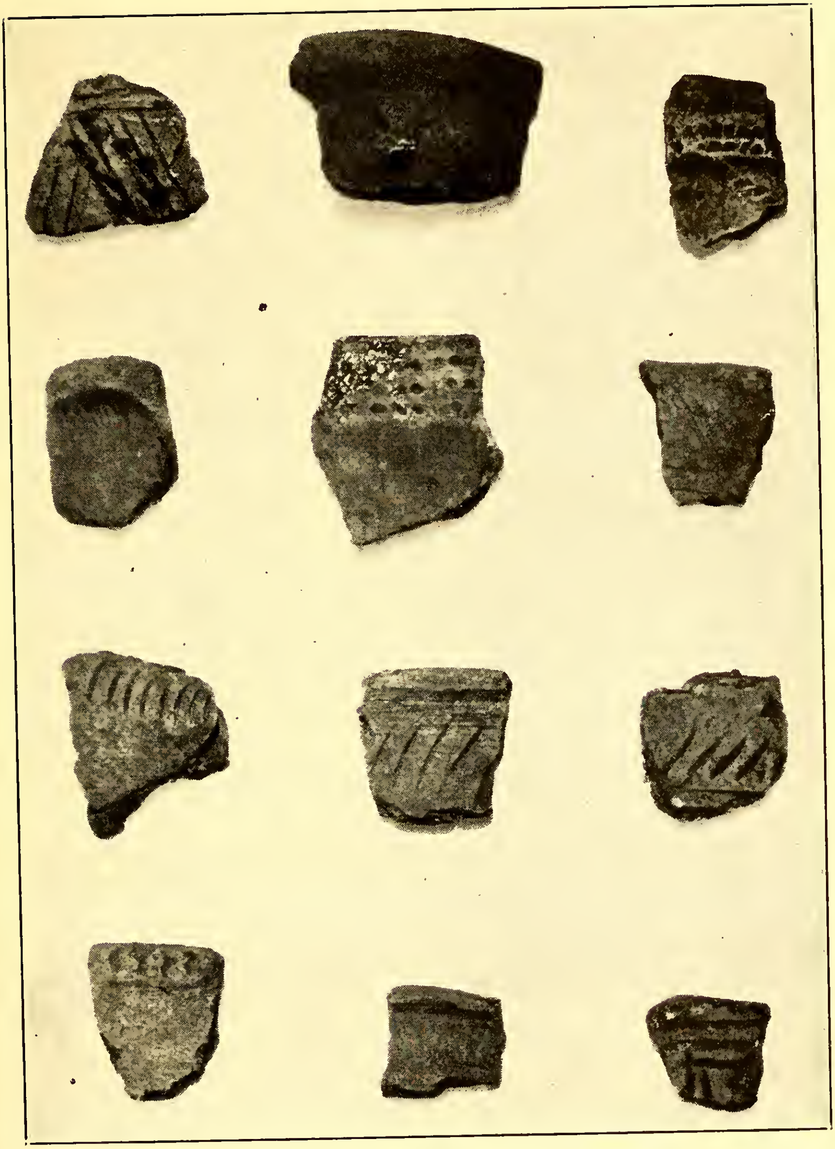
This abundance of pottery remnants contrasts strongly with the comparative paucity of the other objects. How may a quantitative discrepancy such as this be accounted for? The first hypothesis which suggests itself is to assume that this place was largely haunted by women, that it was a squaw shelter, so called. Militating against this theory is the fact that shelters of this kind have never before been found in remote regions or, to be more precise, in districts that were miles away from the nearest village site, as this one certainly was. Still they may have repaired hither, say, for the purpose of gathering in the nut harvest, which, of course, presupposes the former existence of many nut-bearing trees in this vicinity.

Again, the cabin may have been used as a caché for earthen jars, many of which conceivably enough, came to be left by families when traveling over the mountains and who expected to recover them in the future.

Pieces of old-fashioned clay pipes, of indeterminate age, though undoubtedly made by white men, were found in the culture dirt in association with prehistoric remains. Whether or not they were trade articles, obtained from the whites through barter, is an open question. Not improbably they are intrusive objects that, somehow or other, happened to sink down to the aboriginal culture level.

Finally, there were four large fire pits, filled with charcoal and ashes and well defined in their limits. Additional accumulations of dark earth revealing the action of fire were seen extending between these pits, though at shallower depths, but occurring elsewhere to a depth of nearly four feet. In places their distribution seemed to be such as to hint at several levels of occupation, though not of culture, for this was apparently homogeneous, viz., presenting in its general aspects a mixture of Iroquoian and Algonkin industries.

Unquestionably, this place was repeatedly resorted to for an indefinite period of time. Yet, in view of the evidence extant, it appears to have been preponderantly the haunt of squaws, with hunters sojourning only occasionally under its hospitable roof. Unquestionably also, it was a spot beknown



RIMSHERDS FOUND IN KELLY RIDGE SHELTER

to all the tribes once resident in Wyoming Valley, and in point of archaeological moment it ranks first among the ten prehistoric rock shelters thus far located in the territory under discussion.

THE MOUNTAIN TRAIL.

That there were several trails leading from Wyoming Valley to Kelly Ridge rock cabin seems certain beyond peradventure. But we are entirely in the dark respecting their whereabouts or the direction they took. However, after a study of the terrain, the author makes bold to hazard a guess or two. In the first place, we may be reasonably sure that this cabin was visited chiefly by members of tribes resident in Wyoming Valley. This is tantamount to saying that the principal trail or trails to the cabin issued from the valley. In that case, there were at least three lines of approach, namely, through Laurel Run Narrows, the Indian Hill Hollow and the notch along Spring Brook, the southerly tributary of Mill Creek, where Miners Mills road passes to-day. The most likely route may have been by way of the Whitehouse district, Indian Hill and Kelly Creek. It will be recalled that the old Plains road from Parsons took this self-same course to a point south of Indian Hill, whence it turned due south across Wyoming Mountain to Ten Mile Run and Bear Creek.

Again, we doubt not that additional pathways led from the cabin to Bear Creek as well as to the valley along the foot of Bald Mountain. They could be negotiated with comparative ease and the present trails to the latter two localities may be presumed to follow more or less closely the lines of the ancient ones, trodden by moccasined feet centuries before the advent of the palefaces.

ANNIHILATED ROCK ABODES.

Attention has already been directed to man's destructive activities, to the immense inroads made upon the physiographic features of Wyoming Valley by what he so proudly calls his civilization. How vast a contrast in this respect between the European intruder and the aborigine! Had the latter not been cheated out of his birthright and forced to vacate what was his, all the land would still be pristine and replete with the charms of Nature undefiled. For the Redman did not alter the face of the earth but left it very much as he found it. And this it is that constitutes the fundamental difference between civilization, so called, and savagery.

The modification of the local topography due to the works of man have, it is true, been confined chiefly to the valley on both sides of the Susquehanna. Here the metamorphosis of the original conditions went pari passu with the growth of population, calling for ever increased building activities and the construction of numberless streets. As a result, most of the old camps and village sites have become covered with houses except where they continue to be used as farm lands, meadows and pasture grounds.

As for the circumjacent hills, they also have shared in this general disturbance though to a lesser extent and the modifying factors in their order of destructiveness have been the collieries, quarries and railroads. In the nature of things, the physical features here attacked, were the rocks, frequently in the shape of ledges and cliffs. Thus, we may be sure that many a rock shelter, once occurring in the gulches or along the base of crags, has been blasted out of existence, often, no doubt, so completely as to leave no trace whatever of its former presence.

In his search for these places, the investigator has repeatedly noticed rock formations that gave more than a hint of having once been rock shelters, though now hopelessly demolished. As all of these were favorably situated, either along the banks of the Susquehanna or on some one of its affluents, there is good ground for assuming that at least a few of them had been anciently used. And this may be sufficient reason for including them in the present discussion together with the other rock haunts.

NEAR DUPONT.

Altogether there were at least nine such places presumed to have been of archaeological import. The most easterly is in Pittston township, at Dupont, not far south of the point where the Mt. Pisgah road crosses Avoca Creek. Here, for a distance of several hundred meters, the stream flows through a gully, with Pocono sandstone cliffs flanking it east and west. The shelter or what is left of it occurs on its west bank where the crags are highest. Its roof has partly tumbled down covering the floor underneath with its detritus. Near by are other natural coverts, more or less worn down under the influence of rock weathering. Thus these rocks owe their destruction to other than human agencies and, as a matter of fact, there are many such.

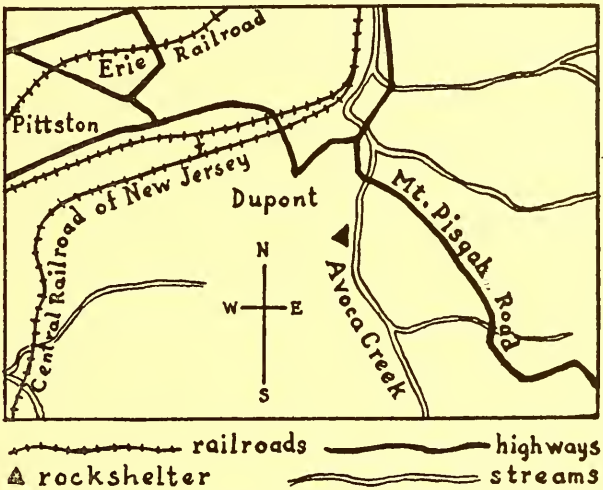


Chart showing site of Dupont rock shelter. Scale—An inch to a mile.

AT PORT GRIFFITH.

The next site to be considered lies at Port Griffith. Close to the Susquehanna and parallel with it there runs a long and almost perpendicular rock escarpment with the tracks of the Lehigh Valley railroad passing between it and the river. An inspection of the steep face of this outcrop seemed to show that originally part of its upper section jutted far out so as to form a covert of considerable size. We may suppose that these projections were blasted off when the road was being built.

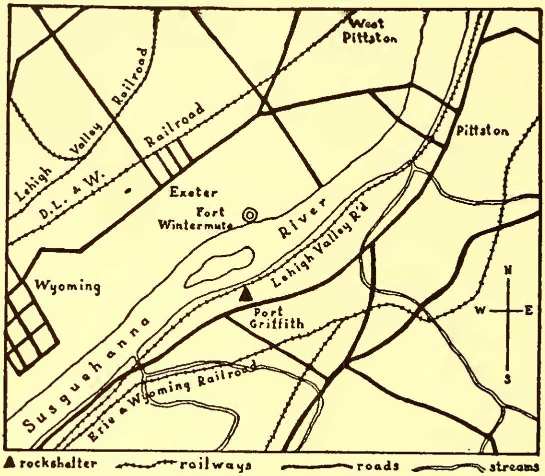


Chart showing site of supposedly destroyed rock shelter at Port Griffith. Scale—1 inch to a mile.

If ever there was a rock shelter at this spot, its situation would have been ideal. Directly opposite is an island, mid-stream, where the Susquehanna might have been easily crossed or forded. Furthermore, the ancient Indian path was hard by, either close to the water or taking to high ground along the top of the rocky ridge, which overlooks the river.

ALONG THE SOUTH BRANCH OF MILL CREEK.

About two miles east of Miners Mills the South Branch of Mill Creek, called Spring Brook, pursues its way through a ravine, the sides of which consist of irregular masses of Pottsville conglomerates. On the south bank of the creek, at the foot of a jagged cliff, there was noted what apparently was once a fine rock shelter. Most of its roof had come down, splitting up into large fragments that were scattered over both its floor and the low slope in front.

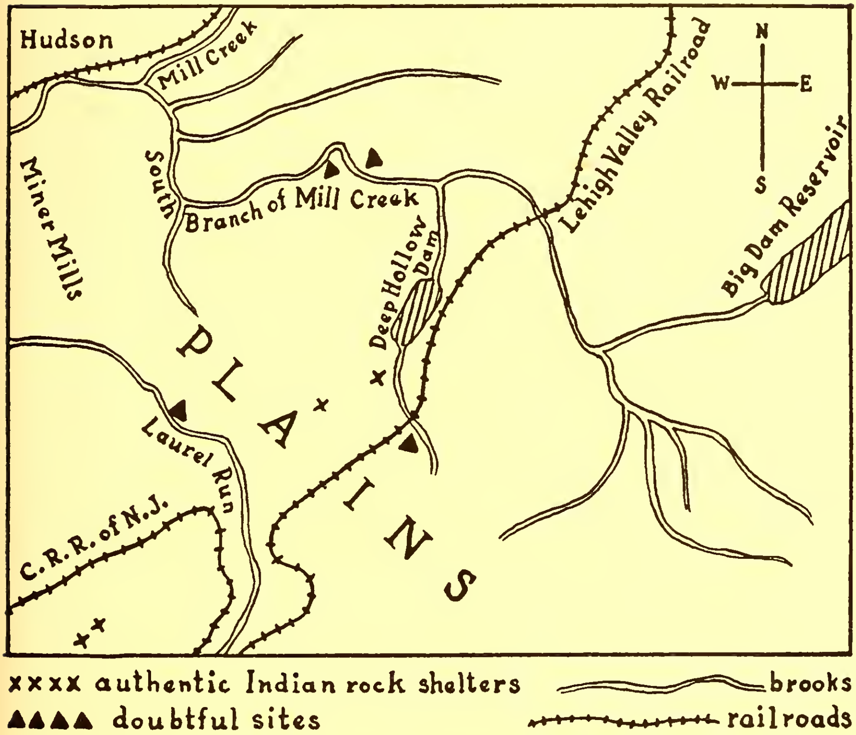


Chart showing the sites of four rock shelters now destroyed and supposed to have been prehistoric. Scale—1 inch to a mile.

The adjoining ledges also were cracked and fissured, ready, it seemed, to collapse at any moment. Unquestionably, the violent shocks, produced by the frequent explosions in near by collieries are almost wholly responsible for the breaking down of what to all appearances was until recently a splendid covert, likely to have yielded evidence of aboriginal occupation.

A short distance farther up the creek, where it passes through a narrow gulch, on its north bank, there is another shelter of a somewhat different type, consisting of a smooth ledge leaning over at an angle of some sixty degrees. This also has been spoiled inasmuch as a large conduit or pipe, conveying water down the gorge, had been laid beneath its roof and covered with earth to a depth of a foot or two. Though, in this case, the rock itself was left perfectly intact, the havoc played with its floor was such as to preclude any further examination. Yet, the writer is, *a priori*, inclined to think that this spot would testify, could it only be explored, to the Indian's erstwhile presence under its roof.

THE GIANT'S DEN ON KELLY CREEK.

A rockhouse, long since demolished, but still reminiscently referred to by old residents in the valley below as the Giant's Den, is reported to have been situated within what was formerly called the Whitehouse neighborhood. To-day, at the spot pointed out to the writer, nothing remains of it but a huge pile of tumbled rocks. The story goes that it was dynamited by navvies acting under orders of Lehigh Valley railroad officials, about the year 1890. The place is readily located lying, as it does, at the intersection of the Lehigh Valley railroad tracks with Kelly Creek, about a mile northeast of Laurel Run Gap. Kelly Creek itself is a diverted stream that had been caused to follow the course of a smaller brook in order that it might feed Deep Hollow Dam reservoir, half a mile to the north. The ruins of the supposed rockhouse lie on its west bank, a few steps east of the tracks. Judging by the amount of rock débris there scattered it might have easily been a covert of large size and, for all we know, attractive enough to have been favored by the Redman's visits.

THE CAVE ON LAUREL RUN.

The last of the purely problematic rock sites to be discussed is the so called Indian Cave on Laurel Run, long since completely blotted out. After leaving the Narrows, Laurel Run winds its way through a deep depression, with rocky slopes and cliffs looming on both sides. Less than a mile north of the Gap its easterly bank is bounded by steep-faced ridges of Pottsville conglomerate, which many years ago began attracting the attention of quarrymen with the result that all that part of the ledges which lay nearest the stream was blasted away. On the authority of men of mature years who have spent all their life in this vicinity, a large cave, some thirty feet deep, is asserted to have occurred in the section thus destroyed. Now nothing is left of it save a shallow recess in the face of the crags, said to have been its innermost portion.

Since local historians are pretty unanimous in declaring that Frances Slocum was taken by her abductors to a cave on Laurel Run, where they spent the night enroute for the Indian country to the north, it becomes a question of absorbing interest whether or not the cavern, alleged to have since been dynamited, was the one resorted to by the kidnappers. If so, it would be a pity that a place, so intimately associated with one of the tragic phases or events attending the girl's abduction, should have been wiped out of existence. At present, there is not a spot anywhere on Laurel Run resembling a cave, and while probably there had been several such, they have all of them met with destruction at the hands of the quarrymen.

On the other hand, most of the old natives round about Carverton are emphatic in averring that little Frances Slocum was kept overnight at what is locally known as the Indian Cabin, on the east bank of Abraham's Creek. Whatever may be the true facts in this case, we are here confronted by a problem that is no longer susceptible of solution.

In the discussion of the next three rock sites we shall be on more solid ground, involving fewer elements of a purely speculative character. Not that conjecture is to be dispensed with, having been superseded by evidence of a more tangible nature, but there will be a bit less of the enigmatic, if not something more definite.

MOLLY MAGUIRE CAVE.

Less than a half mile southeast of Sugar Notch village, at the northern entrance to Sugar Notch, there are many rock ledges forming the base of Wilkes-Barré Mountain. At the foot of one of these, facing the dam of the Wilkes-Barré and Hazleton railroad, a cavern is known to have existed as late as the year 1880. Some of the old residents hereabouts remember this place from their boyhood days, when they used to come here to play.

It is described as having been a good-sized chamber, enclosed on all sides, with a small opening above, serving for light and ventilation, and communicating with the outside by a narrow passage or gallery. This cave is remembered, moreover, as having been one of the hiding places of the Molly Maguires the noted desperadoes of a half a century ago.

Its dirt-covered floor is said to have yielded arrow points and other mementoes of the Redman, for it was apparently a good covert, conveniently situated near the banks of a never failing stream, tributary to Solomon's Creek, and at the very entrance of a fine natural gap, affording easy access to the high-level depression between Wilkes-Barré and Penobscot mountains, thence across the later to the densely wooded plateau farther south.

To-day, nothing is left of the cave, it having completely collapsed by reason, no doubt, of the tremors and concussions caused by frequent blasts in near by collieries.

THE MOCANAQUA ROCK SHELTER.

According to information furnished the writer by Mr. Laidacker, of Shickshinny, a student of local archaeology and withal deeply interested in everything pertaining to aboriginal lore, there was a large rock shelter at Mocanaqua, at the junction of Black Creek with Tuttle Run, near the east bank of the Susquehanna. When a boy, he often visited

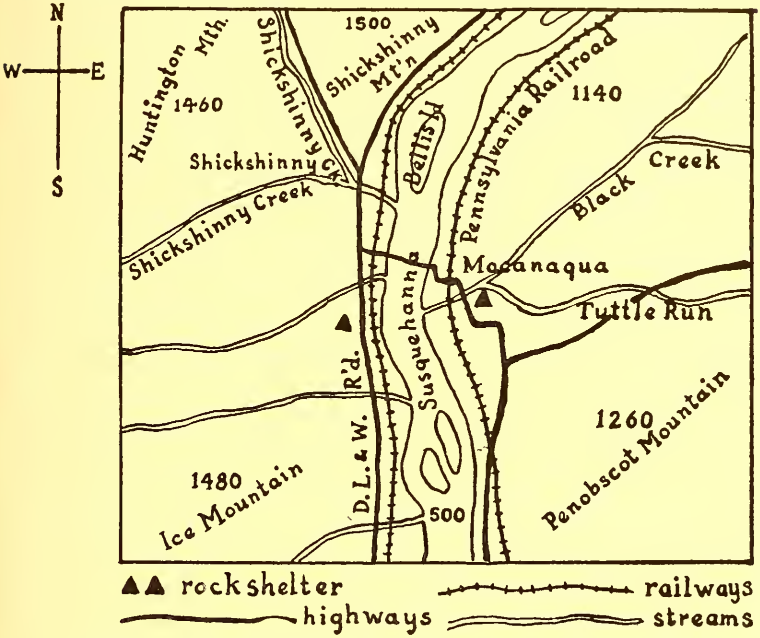


Chart indicating the sites of two destroyed rock shelters. Scale—1 inch to a mile.

this place, but being then unaware of its possible prehistoric significance, he refrained from exploring it. Nor has it ever been dug into by anybody so far as known.

The opening up of coal mines within this district at about that time was bound greatly to modify its physical features and so it happened, in the course of mining operations, that this shelter became buried under huge dumps. Not long ago, when much of the culm was being removed, it was nearly laid bare, but has since been covered up again.

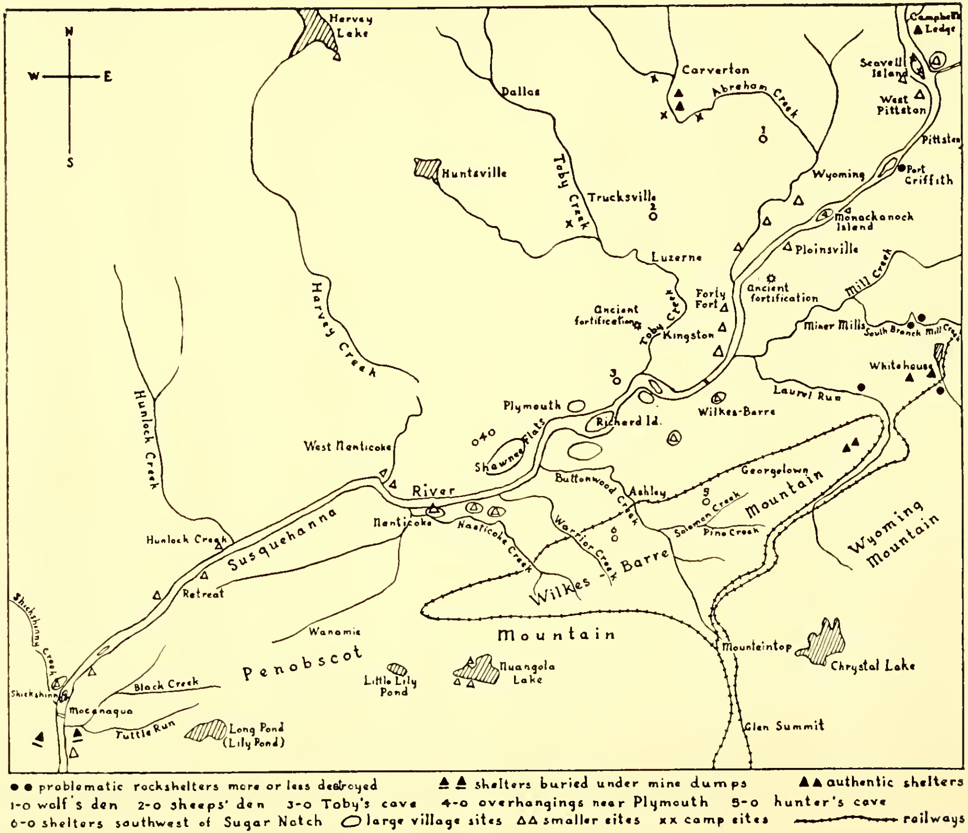
Calling to mind that this section was much favored by the redskins, as is clearly revealed by the profusion and variety of artifacts once found littering the fields along the river, there is a strong probability that this rock did not escape their notice but was, on the contrary, resorted to, provided, of course, that it met with their approval, especially in relation to its floor, which had to be soft or not too stony.

THE SHICKSHINNY ICE CAVE.

On the west bank of the river, high upon the slope of the mountain and almost directly opposite the buried shelter, there is or rather was a cave, for it, too, has been buried out of sight under mine refuse. It was locally known as the Ice Cave because of the fact that in its cool recesses ice would linger far into summer. Those who were familiar with this place describe it as having been of large size and penetrating deeply into the face of the cliff. Spoons and plates of pewter together with other articles apparently harking back to colonial days are reported to have been picked up on top or partly inhumed in the black dirt composing its floor.

Supposing these statements to be correct, there is here also good ground for believing that the aborigines frequented this cavern partial as they were to good natural coverts, wherever found. The dark earth noted may be ascribed to the fires of the Redman, presumed to have camped at this spot, and partly also to fires kindled after them by white folk.

It is a matter of regret that the archaeological survey of the Susquehanna River valley and surrounding hills was not undertaken much sooner and at a time when most of its prehistoric landmarks were yet intact. The progressive wiping out of these, especially within the last few decades, has rendered studies of this sort increasingly difficult as well as problematic and conjectural. It is this impoverished evidence, these gaps in records, once fairly abundant, that oppose well nigh insurmountable obstacles to him who endeavors to solve a few of the problems involved in the archaeology of this valley.



Map of Wyoming Valley and vicinity. Scale—1 inch to a mile.

CONCLUDING REMARKS.

The writer frankly admits that in the preparation of this chapter he had nothing but the slenderest clues to depend upon, that whatever evidence he may have adduced was based either on a priori arguments or on mere hearsay, i. e., the boyhood observations of men old enough to supply data of this character. At the same time and notwithstanding all this he has little doubt that his conclusions deductively arrived at contain more than a grain of truth, that in the light of surrounding circumstances they even assume the appearance of verisimilitude.

Pondering, moreover, the destruction of so many records and telltale marks, once so eloquent of days agone, he thought it wise to restore the memory of what may have been sites of prehistoric import. Accordingly, he included in this treatise the above nine sites, all of which would have been ordinarily ruled out because of their failure to provide anything but inadequate and questionable testimonials. Briefly, his desire to salvage as far as possible the archaeology of this section of country must be his chief excuse and justification for having at all deemed these places worthy of consideration.

STATIONS OF A SOMEWHAT DOUBTFUL CHARACTER.

There are several places which the writer has not yet examined with any degree of thoroughness, and a few others of which he has merely heard. For completeness' sake he appends herewith a short account of each of these stations, not knowing to what extent if any some of them may bear upon the matter under review.

THE WOLF'S DEN.

Less than two miles northwest of Wyoming, near the crest of the mountain, overlooking the valley, and 1300 feet above sea level, there is the Wolf's Den of local fame. At this spot there is an extensive outcrop of Pottsville conglomerate, weird and picturesque, made up of huge blocks of rock, fissured and cleft by atmospheric influences, with impending tops, caverns and passage-ways. Some of the overhangs are large enough to afford shelter from wind and rain. Water also is close by, supplied by a spring near the foot of the ledges. Being, however, in an out-of-the-way locality and difficult of access, it is not thought probable that the redskins cared to camp under these rocks and this all the less so because their more permanent abodes in the valley below were within easy reach.

As a matter of fact, test holes, dug in the most likely places under the shelter of the cliffs have so far afforded no vestige whatever of a prehistoric type, though such vestiges are claimed to have been found here many years ago.

THE SHEEPS' DEN.

Perched high upon the flanks of the mountain, some 1300 feet above the sea, and about a mile and a half northwest of Luzerne, there occurs the so called Sheeps' Den. It is a gloomy place, resembling a cavern, at the foot of the cliff, protected in front by fallen masses of rock, that afford entrance to it at opposite ends. The roofed-over space within is obstructed by large stones, embedded in a rich humus of a blackish color. As a consequence, it cannot be excavated without the use of a crowbar. What little digging was done by the investigator did not reveal any reminders of prehistoric days. Yet it would not at all seem unlikely that a more thorough exploration made with the proper tools might yield such remains. It was owing to the courtesy of Mr. John M. Hewitt, of Luzerne, that the writer learned of this spot.

TOBY'S CAVE.

The cavity, known as Toby's Cave, on the eastern face of the ridge, dominating the Susquehanna, about two miles below Kingston, has, if judged by its present appearance, never been used by the ancient dwellers of this valley. Not only is it very small and minus a dirt floor, but a large aperture on top permits the surface drainage during heavy rains to flood its interior. However, from all accounts it would appear that formerly this cave was of considerable size and not at all like what it is to-day. In common with other landmarks it fell prey to ruthless vandalism, having been blown up with dynamite some fifty years ago. Historically, it is an interesting spot, for several men, who had escaped the Wyoming massacre, are said to have used it as a temporary hiding place.

THE OVERHANGS BACK OF PLYMOUTH.

West of Plymouth are numerous overhanging ledges, which according to the voice of tradition have been haunted by the aborigines, notably the Shawnees, once living on the flats between river and mountain. Mr. Christopher Wren, whilom curator of the Wyoming Historical and Geological Society, secured fragments of pottery jars under some of these. The writer's own investigation in this neighborhood was attended with negative results, doubtless, because everything of archaeological moment had long ago been removed.

THE HUNTERS' CAVE.

On the northward-facing slope of Wilkes-Barré Mountain, somewhere between Ashley and Georgetown, there is a ravine, running northeast and southwest parallel to the trend of the mountain, bounded on the northwest by steep crags and on the southeast by a wooded acclivity. Near the upper or southwest end of this ravine occurs a fine natural covert, called the Hunters' Cave.

It is a remarkable structure due to the piling up of enormous hunks of Pottsville rock and this in such a wise as to result in the formation of a shelter open on one side only. The dirt floor under the rock, though dug into for about a foot, disclosed not a trace of the hoped-for vestiges. Yet there is no telling what evidence may be forthcoming when excavated more deeply.

Along the lower reaches of the glen there are three or four more shelving rocks of excellent configuration. Although test holes were dug in each of them, nothing came to light. A small brook which runs dry in times of drought, flows down the glen past all of these spots.

Though the last-named stations were apparently destitute of prehistoric tell-tale marks, it does by no means follow that they never sheltered some roving redskin. It is altogether conceivable that he did not always leave traces behind, at least not such as might have been recognized centuries later. Often, without question, he merely built a fire and departed.

THE SHELTERS SOUTHWEST OF SUGAR NOTCH.

A group of shelters were noted along the outcropping ledges of Pottsville conglomerate that constitute the northwestern margin of a ravine on the crest of the mountain between Sugar Notch and Warrior Gap. A few of these may once have been quite suitable for occupancy, but to-day their floors are strewn with large fragments of rock that had broken off the face of the ledge in consequence of the action of heat and frost and other factors of disintegration.

THE PENOBSCOT MOUNTAIN SHELTER.

There is a rock station of aboriginal interest on Penobscot Mountain, about two miles west of Wanamie, Newport township, County of Luzerne, near an old trail, still used in passing from Wyoming Valley to Lily Pond, now named Long Pond, in Slocum township. Under this rock the "Moses Vandermark" pot was found.

Notwithstanding a diligent search of all this territory, the writer was unable to locate this site, nor had any of the natives, whom he interrogated, ever noticed a place of this kind. But even if found, it would not have been a fresh discovery, as the shelter, as stated above, had already been superficially examined more than twenty years ago and has since then, in 1916, been quite thoroughly dug up. This was done by Mr. Alanson Skinner, of the Museum of the American Indian, New York City, who visited the place under the guidance of Messrs. T. Vandermark and Christopher Wren.

According to data furnished by the above, the shelter faces east and is less than a hundred meters from a fine spring and the mountain trail. It is about twenty-five feet long and has a roof projection of ten or twelve feet. Several fireplaces were noted, filled with ashes from six to eight inches deep, embedded in which were unio shells, both unio complanatus and unio fluviatilis, together with deer bones, fragments of turtle shells and quantities of fractured pottery. The latter displayed, as is almost invariably the case in Wyoming Valley rock shelters, both Iroquoian and Algonkin designs and lay near the surface. From the type of the potsherds, Mr. Skinner judged this site to have been an Algonkin stopping-place, possibly Munsee.

CAMP AND VILLAGE SITES IN WYOMING VALLEY.

In the preceding pages attention was drawn to the fact that the physical changes effected throughout Wyoming Valley have been such as to preclude the possibility within its confines of further archaeological studies. A survey of this kind being now out of the question, the researcher was compelled to concentrate his efforts upon the mountainous districts north and south of the valley, where the natural conditions have been much less disturbed, having, in fact, been allowed to a large extent to retain their primitive aspects.

While this is quite true, we are fortunately not without notes concerning the exact situation of the more important Indian landmarks, once dotting the shores of the Susquehanna. And, indeed, there is a wealth of information extant on this subject, based in part on well authenticated tradition, in part on the early observations of men of a former generation. But for this evidence, thus thoughtfully preserved, we should at this late day be groping in the dark with no chance of ever again securing anything like reliable data in this respect. Certain it is that under the conditions now existing within this region its prehistoric sites have been all but effaced. Buried under mine dumps or covered with buildings and, at any rate, devoid of everything that once served to identify them, they are now no more than a name and a memory.

Mr. Christopher Wren in his study of North Appalachian pottery gives a fairly complete account of the camps and villages anciently lying along the banks of the river all the way from Campbell's Ledge to Hunlock Creek. The writer can do no better than avail himself of his notes, subjoining thereto such data as he was still able to obtain either from his own observations or from other sources. In short, few of the facts, now to be presented for the sake of rounding out this report are, strictly speaking, the fruit of his own labors and could no more be such, seeing that the time for a research of this sort in this locality is irretrievably gone.

ASSERUGHNEY.

That aboriginal life gravitated toward Wyoming Valley is incontrovertibly attested at once by the multitudes of camp sites and the prodigious quantities of artifacts formerly noted hereabouts. Beginning at the northeastern gateway to the valley, we find the site of the Indian town of Asserughney, probably called Hazirok by the Iroquois, occupying the sandy level fields on the east bank of the river, between Campbell's Ledge and the Lackawanna. Being at the confluence of two streams, the spot was well chosen alike with regard to fishing and the pursuits of husbandry. Conrad Weiser, the celebrated Indian scout and interpreter, visited this place in 1754 and he found twenty Redmen living there. In October, 1755, David Zeisberger and Christian Seidel, two Moravian missionaries, passed through this region, referring to it as Lechaweke, the Minisink Town, and as such, no doubt, identical with Asserughney. In "Annals of Luzerne" by Stewart Pearce it is mentioned as a Lenâpé settlement. Kindassova was chief of this clan in 1728. To-day this tract is covered by the extensive Coxton railway yards and adjoining truck farms. There was a ford across the Lackawanna just below its mouth.

ADJOUQUAY (PITTSTON).

An Indian town, named Adjouquay, is said to have been situated at an early date on the east bank of the Susquehanna, at the present site of Pittston.

SCOVELL ISLAND.

On Scovell Island, opposite the mouth of the Lackawanna, many traces of aboriginal occupation have been discovered, especially at the north and south points of the island, which may indicate the sites of fishing camps. Large fragments of steatite or soapstone bowls have also been found and these are now in the collection of the Wyoming Historical and Geological Society. Another collection from this locality is owned by Harry Andrews, of Pittston. The aboriginal name for this island was, it is claimed, Lackawannock or rather Leckaw-Hanneck.

WEST PITTSTON.

Time was when the level stretches of land now covered by West Pittston abounded with prehistoric remains of various types, betokening former lodge sites. Prominent among the few camping grounds still recognizable hereabouts, are two sites on opposite banks of Carpenter's Creek, at its mouth, on J. P. Carpenter's farm, west of Scovell Island.

WYOMING FLATS.

Southwest of the borough of Wyoming, on the north bank of the river extend the Wyoming Flats a level tract of ground, some two miles in length. Here, between Abraham's Creek and the river, vestiges of the Redman's presence used to be quite plentiful, bespeaking numerous lodge sites that were occupied at one time or another. Mr. Wren, judging from the distribution of the remains and their concentration at certain spots thought that these revealed at least two large, well marked sites, if not villages, the upper one being on the Thomas P. Hunt farm, some three hundred meters south of the monument, the lower one being on the old Brodhead farm. One of these encampments may be identical with that of the Mohicans who according to an old map were temporarily dwelling in this neighborhood, in 1757.

NORTH OF FORTY FORT.

A site was situated a short distance above the mouth of Abraham's Creek, less than a mile north of Forty Fort. There are no signs of it at present.

DORRANCETON FLATS.

A succession of camping grounds, now partially wiped out, occurred farther down stream, between Pierce street, in Dorranceton, and the bend of the river, near Forty Fort. Many of the arrow points here found were of jasper and of exquisite workmanship.

ABOVE PLAINSVILLE.

There was once an encampment on the south bank of the Susquehanna, near the mouth of a small stream, opposite the northern extremity of Monoconock Island. Here the Indians used to ford the river.

MONOCONOCK ISLAND.

What appears to have been an important site lay on the high ground in the centre of Monoconock Island. J. P. Blanchard, the owner of the estate, has here gathered a rich harvest of stone implements of various types such as arrow points, spearheads, scrapers, netsinkers and sinew dressers. The material employed was chiefly a grayish chert, associated with some flint, jasper, argillite, rhyolite and soapstone.

PLAINSVILLE.

Near Plainsville, on the south side of the river, a tribe of Unami Indians was occupying a village, in 1757, as shown on an old map. The remains appeared concentrated on the farms of W. H. Evans and William McCulloch.

AN ANCIENT FORTIFICATION.

A scant mile farther downstream traces of an ancient fortification were observed on elevated ground many years ago. They consisted, it is claimed, of low earthworks, somewhat circular in outline and with a shallow ditch in front. All vestiges of these have since been obliterated. Whosoever built this fort is a question wrapt in total mystery, nor does it appear that the aborigines who lived here at the time of the white man's arrival in the valley could explain.

MIDVALE.

The elevated ground north of the mouth of Mill Creek, on the south side of the river, was evidently the site of a large encampment or village. Numerous surface finds have been made here in years gone by.

KINGSTON.

The high sandy flats on the other side of the river, opposite the mouth of Mill Creek, have likewise yielded numerous specimens of an aboriginal character denoting the former residence of the savages. Even to-day this site it not exhausted and after every plowing there are turned up various remains, including quantities of potsherds, either plain or exhibiting both Iroquoian and Algonkin ornamentation. At this point there was, it is said, a ford across the Susquehanna.

KIRBY PARK.

About a mile downstream, on the north side of the river, below West Market street bridge, the writer notwithstanding the highly disturbed surface conditions of grading, etc., detected the tell-tale marks of the aborigines in the shape of flint chips and crude hammerstones.

FISH ISLAND.

Countless artifacts are reported to have been picked up on this island up to about forty years ago. Although now at the mercy of every freshet, flooding it more or less completely, it was presumably a dry enough place in Indian days, when destructive inundations were practically unknown, thanks to the vast forests then covering all the land and which operated to check such floods through absorption and more equable conservation of precipitated moisture. The erstwhile occurrence of numerous netsinkers on this island proclaims a fishing camp frequented, maybe, throughout a great length of time.

THE PREHISTORIC FORT NEAR TOBY CREEK.

South of Kingston and less than a mile above the mouth of Toby Creek, traces of another fortification, ascribable to the Redman, have been noted in the past. It lay on rising ground overlooking the lowlands near the river and, like the former, it is said to have been a circumvallation of rude breastworks. Dim as these were many decades ago, they are now completely leveled down and their very position can no longer be ascertained.

WILKES-BARRÉ.

The southerly side of the river, between Wilkes-Barré and Nanticoke, was anciently dotted with many a camp and village site, few of which have escaped the destructive tread of the invading European. Thus an Indian town lay in the very centre of Wilkes-Barré on what is now the Public Square and the land adjoining it riverward. Fort Wilkes-Barré was erected at this spot in 1776.

THE LENAPÉ VILLAGE.

On the authority of the aforesaid old map the Lenâpé occupied a village somewhere on the Heights, about a mile from the river, in the year 1742. To-day all this neighborhood is covered with houses.

TOBY'S EDDY.

Less than a mile below West River street, on the south side of the Susquehanna, where it swings around abruptly to the southwest at an angle of ninety degrees, a short distance below Fish Island, the high level fields used to be littered with a profusion of relics hinting at intense occupation on the part of the redskins. Many fine specimens of the potter's art have been found on these fields.

While surface finds are now exceedingly rare, the writer, devoting his attention to the steep faces of the river bank, extracted from it many chips and other refuse of implement making as well as what appeared to be human bones, some of this material being buried three feet deep. Most amazing, however, was the fact that the exposed scarp seemed to exhibit distinct traces of stratified deposits, suggestive of different horizons of culture. Incredible as this may sound, such a condition would, if actual, imply an occupation of this particular locality extending over many centuries, during which the various culture deposits were slowly accumulating, from the oldest at the bottom to the more recent near the surface.

FOOT OF SIMPSON STREET.

While grading the lower end of Simpson street, South Wilkes-Barré, in 1923, an abundance of archaeological specimens were brought to light, some of them buried more than a foot deep. They were especially abundant in the fine alluvial soil near the river's bank and here the workmen unearthed, moreover, skeletal remains of undoubted Indian origin, all of them badly moldered, excepting the more resistant bones such as femurs, jawbones and teeth. Tomahawks, beads and fragments of pottery also came to light.

THE BUTTONWOOD FLATS.

The tract of land between the river and Buttonwood Creek, opposite Plymouth, had evidently been much favored by the aborigines, if we may judge from the abundance of remains once littering the surface soil. Arrow points, fashioned of jasper and argillite, were remarkably plentiful, as were fragments of earthenware.

THE DUNDEE FARM.

Another prehistoric settlement, testifying to intense occupation lay on what has been designated as the Dundee farm, i. e., a piece of high ground a short distance from the river, between Nanticoke and Warrior creeks. Mr. Oscar J. Harvey is authority for the statement that the Wanamie tribe of Indians dwelt on this site.

PLYMOUTH.

The level fields bordering the river west of Richard Island were once occupied by a village of the Shawnees. There is certain information to show that they were living here in 1742. An aboriginal cemetery of large size is known to be in this vicinity.

SHAWNEE FLATS.

Below Plymouth there is an extensive tract of bottom lands, nearly three miles long by a mile wide. The vast quantity of relics secured there in the past reveals an intense prehistoric activity. As a matter of fact, the Shawnees dwelt here in considerable numbers, one branch of them having arrived as early as 1701. Mr. Wren distinguished no less than three well defined village sites.

WEST NANTICOKE.

An abundance of aboriginal objects was once noted on the narrow swell of ground above the mouth of Harvey's Creek. Fragments of soapstone vessels and implements made of rhyolite were of common occurrence hereabouts, but there was a noticeable absence of clay pottery.

A site now obliterated lay opposite the mouth of Nanticoke Creek, at a point where the old boathouses were situated.

THE NANTICOKE FLATS.

The low lying patch of land between the town of Nanticoke and the river afforded until recently ample proof of having been the site of a large prehistoric settlement. This district has always been known as the Nanticoke Flats because of the fact that the Nanticoke tribe of Indians had lived here for a while.

THE LOWER PORTION OF THE VALLEY.

Whatever the conclusions to be drawn from the distribution of aboriginal sites along the banks of the Susquehanna between Campbell's Ledge on the northeast and West Nanticoke on the southwest, there is good ground for assuming that for a time at least that part of the valley below Wilkes-Barré was more thickly peopled than the upper one. Not that there is any striking disparity between the two sections in the relative number of camps observed, but it would seem that those occurring along the lower reach were of much larger size than the former. At first thought, topographic conditions may be deemed responsible for this sort of distribution or for the predilection apparently shown by the redskins in favoring this particular section. However, it is difficult to understand wherein it excelled the other. For one thing, fine rich bottom lands, adapted to occupation, are quite evenly scattered throughout the valley, especially north of the river, yet, in spite of this, most of the important villages appear to have been crowded towards its western end, with the Shawnee Flats below Plymouth as a centre.

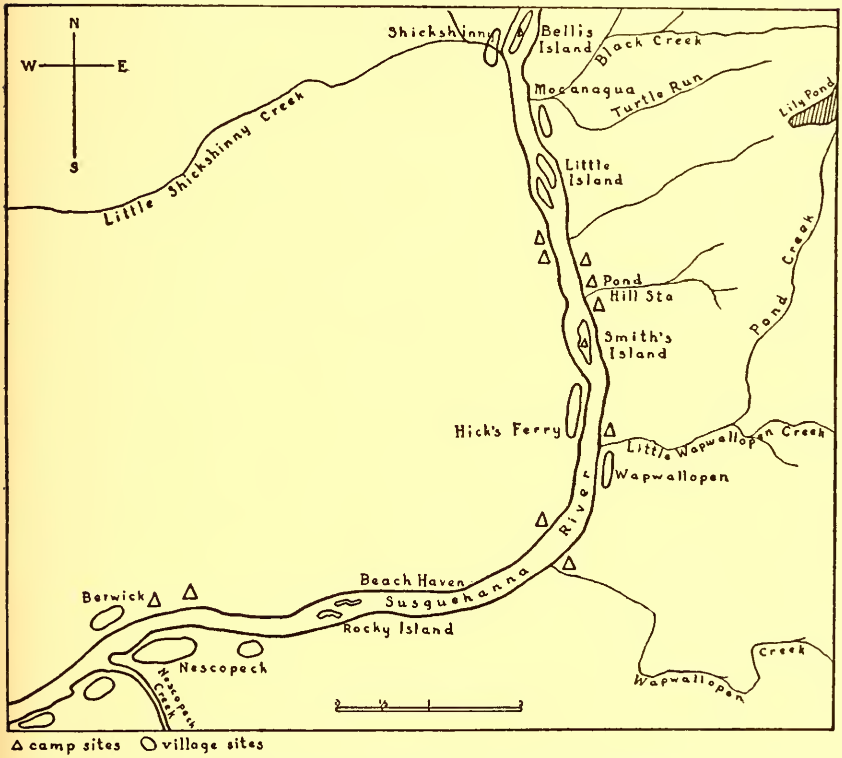
Supposing our observation to be correct or in agreement with the actual state of affairs of two centuries ago, how may we account for this? An explanation readily suggests itself. In the first place, we find that the lower end of

Wyoming Valley was held exclusively by the Shawnees and Nanticokes, presumably populous tribes and these, we know, did not arrive on the scene until the early part of the eighteenth century. As at that time much of the valley had been taken up by other clans, principally if not wholly of Algonkin stock, the Shawnees and Nanticokes, being newcomers, had to be content with whatever they could lay hold of. They were left but little choice in the matter of selecting their quarters and, to be sure, the fact that they concentrated near what is now Plymouth justifies us in concluding that this was about the only section then available for occupation, the upper part of the valley being in possession of tribes that had lived there for some time. Since the latter had had the first pick, so to speak, it follows that the portion chosen by them was the more desirable. And so it was for the aborigines were the keenest and most discriminating of judges in that they unerringly fixed upon the best localities, viz., those most suitable for their purposes. Hence it was not that the lower section was in greater demand, but, on the contrary, far from this having been the case, it was primarily the lack of choice, i. e., iron necessity that compelled them, as late arrivals, to settle where they did and being in large numbers, their quarters became crowded.

THE LOWER RIVER VALLEY.

In the following we shall touch upon the old camps that are found scattered along the Susquehanna between West Nanticoke and Nescopeck, a distance of some twenty miles. This strip of country differs greatly from Wyoming Valley, as already pointed out. While in the latter the mountains stand far back from the river, with broad bottom lands intervening, they here crowd close to its banks, often leaving barely space enough for railroad and highway. Thus this twenty-mile stretch of valley partakes somewhat of the nature of a gorge, widening here and there into narrow flats, wherever the hills recede.

It is owing to this relative infrequency of broad bottoms, which in Wyoming Valley afforded a plethora of ideal camping grounds, that the region in question was, on the whole, much less frequented. The sporadically occurring flats were, to be sure, invariably made use of for purposes of habitation, yet, lying miles apart, the disposition of the sites located thereon, was one of isolation or detachment and utterly unlike what was observed in most sections of Wyoming Valley, where they were often massed or clustered in such a way as to create the impression of continuous villages, a



Camp and village sites along Susquehanna River between Shickshinny and Nescopeck. Scale—½ inch to a mile.

mile or so in length. Being grouped so closely together, with hardly any interspaces, containing few or no cultural remains, they appeared, not infrequently, to coalesce or merge the one into the other.

It is but natural to find that these intermittent flats determined the location of the aboriginal camps not only here but elsewhere, for the Indian, like ourselves, was dependent upon physiographic conditions. All told, more than thirty sites have here been identified. There are sites at the mouth of Hunlock Creek, on the high bank west of the stream on R. A. Vanhorn's farm, on the flats belonging to B. F. Croop and at a point two miles downstream where the hills draw back from the river. At Shickshinny an important settlement was situated, as evidenced by the profusion of multifarious objects picked up there for a long time past. It occupied the elevated ground on both sides of Shickshinny Creek near its mouth. Numerous potsherds and other artifacts have been recovered on Bellis Island, directly opposite.

Along the south bank of the river the following sites were noted: One at Retreat on the sandy fields, some ten feet above the Susquehanna. Here the signs of former occupation extend over a distance of nearly a mile, hinting at a great many wigwams pitched in the course of centuries. A second site lay on the flats about a mile above Mocanaqua, and another one occurred at Mocanaqua just below the mouth of Black Creek, where there is a stretch of broad level land. Innumerable artifacts of primitive culture have been secured in this latter locality within the past fifty years, many of which are now in the Laidacker collection at Shickshinny.

Together with the prehistoric village at Shickshinny this part of the river valley was evidently one of the headquarters of Indian life and the writer is told that some forty pots, many of them in a fair state of preservation, have been collected in this vicinity, discovered either under low shelving rocks amid the neighboring hills or in the fields near the river's edge.

BELOW SHICKSHINNY.

A camp was noted a scant two miles south of Shickshinny, on the west bank of the Susquehanna, where the mountain stands back far enough to give rise to a narrow flat.

POND HILL STATION.

There are no fewer than three sites in this neighborhood, to-wit, one on the bottom lands, north of the station, another one on Morris Boyd's farm, and the third one on Smith's Island, a little distance downstream.

MOUTH OF LITTLE WAPWALLOPEN.

Quite a group of sites occur along the lower run of Little Wapwallopen Creek, two of these being near its junction with the river, on the flats directly north and south of the stream. Specimens have been gathered on the farms of C. M. Harter, Hiram Miller, Henry Smith and Aaron Harter.

WAPWALLOPEN.

Farther down the east bank are two sites near where Wapwallopen Creek empties into the Susquehanna. Back of the northerly one looms Council Cup, a rock-ribbed, isolated eminence, 1200 feet high, visible for many miles around as the most conspicuous feature of the landscape. Promontory-like it presents its steep face riverward, its upper portion a massive bulk of sheer crags, seamed and weather-worn. Being a wonderful coign of vantage, permitting of unobstructed views over a wide sweep of country, tradition has it that the aborigines from far and near would convene on its highest point to hold their powwows and to deliberate on important matters involving their common welfare. Hence the name given to the mountain, a name it has borne ever since the land changed hands and, withal, one so apt to perpetuate the Redman's memory.*

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*Another explanation is the corruption of the name "Kanzel Kopf" given by the early German settlers in Hollenback township, which means Pulpit Rock. Ed.

A cave, well hidden and difficult of approach, is claimed to exist high upon its western acclivity and fragments of Indian earthenware in association with other relics are said to have been found, buried in its dirt floor.

HICKS FERRY.

On the west bank of the river, above Hick's Ferry, several encampments were noticed, scattered along the flats. One of these is on the Gould farm.

BEACH HAVEN.

On F. E. Brockway's farm many artifacts of various types have been garnered for many years back.

BERWICK.

Numerous aboriginal camping grounds dotted the broad bottoms all about Berwick and relic hunters have secured fine collections comprising nearly every type of implement characteristic of the ancient inhabitants of the State.

NESCOPECK.

No less prolific in remains, were, it would seem, the extensive flats on the opposite or east bank of the Susquehanna, around Nescopeck. The most northerly of these sites was on M. M. Harter's farm and from all accounts it has yielded within the past forty years several thousand specimens of almost every description.

Other ancient encampments have been identified all about the mouth of Nescopeck Creek and they are numerous enough to produce the impression of one long, continuous village, extending for fully four miles along the east bank of the river. The largest and best known of these aboriginal settlements was called Niskebeckon, alias Nescopeck, and it was occupied by Lenni Lenâpé, as previously stated. Its exact situation seems to have been about a mile downstream from the mouth of Nescopeck Creek. As regards the meaning of the name Nescopeck, it signifies "black spring" and is pure Algonkin.

BRIAR CREEK.

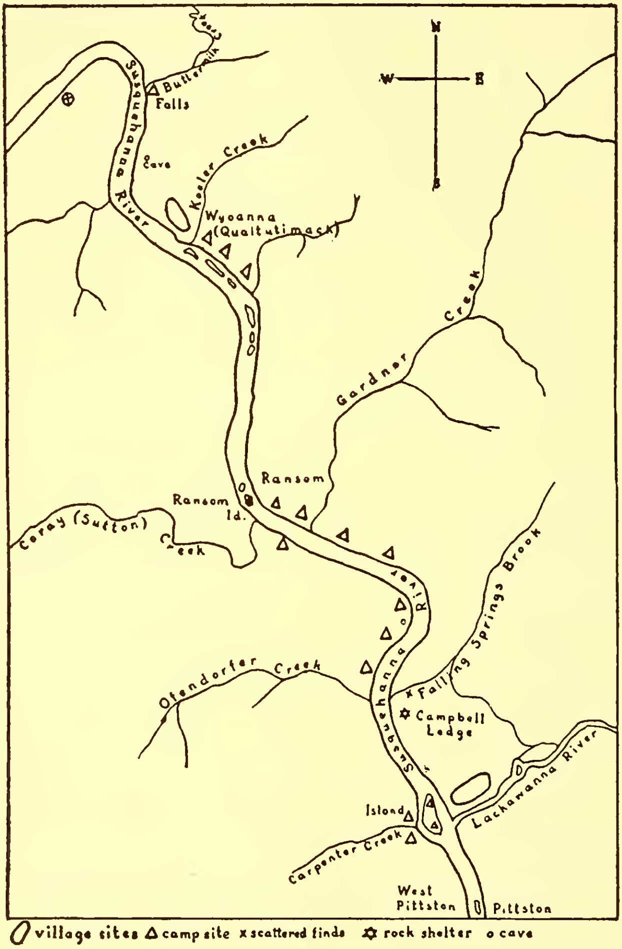
A site has been reported from the mouth of Briar Creek, on Susquehanna River and also from Conshohocken, on Bittenbender's farm, along the Susquehanna.

THE SUSQUEHANNA'S PAST GLORY.

It is safe to assume that most of these sites were chiefly haunted by anglers, for the Susquehanna, at that time, yielded a profusion of fish, easily obtained by net or hook and allowing an agreeable change from the meat menu. But, alas, what profound changes the white man has since wrought! Irrevocably gone are the days when the finny tribes thronged the pellucid waters of the mighty stream and what managed to survive could never have tempted the dusky fisherman. To-day, its waters are polluted, its bed is silted up and shifting sand bars impede its easy flow. Nor is there anything left of the glory of the primeval forests, once mantling shore and hillside and providing the conditions under which alone wild life in its myriad forms could continue to exist. And at this juncture we wish to cite the late lamented Dr. C. C. Abbott, of Trenton, New Jersey, whose remarks about the Delaware River will be found strangely pertinent to the Susquehanna: "In the Indian day this river was an important feature in the scheme of Nature, as it is now in the scheme of man. It drained the forests in the day of its glory as it is now the sewer of many cities in its day of shame. There is hardly a rod of shore or landmark that an Indian, even of Colonial times, would recognize were he brought back to life. The river itself would not seem the same. Its filthy waters, absence of aquatic life and general aspect of desolation, would be as inexplicable to him as it would be deplorable. It is the same river only in the sense that water still flows in practically the same channel."

THE VALLEY BETWEEN CAMPBELL'S LEDGE AND FALLS.

Speaking of the river valley north of Campbell's Ledge, a study was made of the sites on both banks of the stream as far north as Falls, a distance of some ten miles. About



Map showing camp and village sites along the Susquehanna between Pittston and Falls. Scale—½ inch to a mile.

fourteen camps were located, namely, nine on the east side, one on a small island, and the remaining four on the west side. A distribution such as this is quite significant in that it shows that the Redman gave preference to the east bank as being more suitable for habitation. And so it surely was from his point of view which always took cognizance of every advantage accruing from physical conditions. Topographically, that is to say, taking into account the peculiar exigencies of their mode of life, his choice in this case as in most others was unquestionably sound, for though the mountains skirting the easterly bank of the river are not only much more precipitous than those on the opposite shore but rise in several places almost from the water's edge and that for miles together, their frowning walls are broken in at least two localities by broad bottom lands, miles in length, that were well adapted alike to habitation and the arts of husbandry. One of these bottoms is at Ransom, the other at Wyoanna.

On the west bank there is but one well defined flat, between West Pittston and Coray's Creek, also known as Sutton's Creek, opposite Ransom, while the remaining territory bounding the river is of an undulating character, uneven and slopy.

FALLING SPRINGS BROOK.

Beginning at Campbell's Ledge, the northeastern portal to Wyoming Valley, we encounter the familiar traces of a camp on a level elevated piece of ground directly above the main cataract of Falling Springs brook, a few hundred meters north of the rock shelter dealt with in a preceding chapter. Here the surface was found strewn with chips, mostly of chert and flint, telling a tale of implement-making.

RANSOM.

About two miles farther north the craggy face of the mountain, dominating the river all the way from Falling Springs brook, peters out and we enter one of the broad level strips of country just alluded to. Here there is a cluster of sites, large and small scattered along the river for no less than two miles to a point just above Ransom, where the precipitous cliffs again approach the banks, hugging them all the way up to Wyoanna, two miles to the north.

At least five sites could be distinguished on these flats, four between railroad and river, above and below the mouth of Gardner's Creek, and the fifth one on H. G. Burgess' farm. Most likely, however, camps were here pitched and broken scores of times and there is no way of telling their precise situations or limits.

On Ransom Island, opposite Ives' ferry, numerous fragments of pottery have been found. The ferry itself is an old one, having been operated as early as the year 1795.

Apart from Indian landmarks, this section is rich in historic associations, for it was here that John Gardner, pioneer settler, was burned at the stake by the Indians in what is now F. M. Ives' orchard. Further, while digging the foundation for the Ives homestead, bronze bullets and a sabre were unearthed, reminiscent no doubt of Sullivan's army, which passed through here in 1779, enroute for the country of the Six Nations.

WYOANNA.

The next group of sites is found on the flats, nearly two miles long, at the mouth of Keeler's Creek, Wyoanna. Two or more of these, for there is no telling their exact number, lie on Levi Lewis's farm below Keeler's Creek, and another one, apparently of considerable size, occupied what is known as Keeler's Flats, just above the mouth of Keeler's Creek.

It was at this place that General Sullivan and his army encamped in 1779. In many of the journals of his officers and soldiers the locality is referred to as Quailutimack or Wyolatimuck, to mention only a few of the many ways of spelling the name, and its meaning is declared to be "we came unaware upon them." In a word, it was believed in those days that it had been the place of an Indian battle and this bit of information, dating back to the Indian period, ought not lightly to be dismissed as untrustworthy and this all the less so if we consider the opportunities, then extant, of obtaining first-hand knowledge, a knowledge not yet distorted or blurred with the passing of time.

A careful search of this spot and of the adjoining fields lower down-stream revealed an abundance of chips, pieces of pottery, as well as netsinkers and crude hammerstones, and we may therefore be justified in concluding that these flats were much resorted to by the redskins, that they were, in truth, the site of a large camp or village, occupied more or less permanently.

THE CAVE UP THE CLIFF.

Halfway between Keeler's Flats and Falls, high upon the westerly precipitous face of the mountain here flanking the river, is a large rocky cavern, the aerie of hawks and occasional eagles. It is a breakneck spot most perilous to reach and the best way of approach is roundabout by ascending to the top of the mountain and clambering some distance down the cliffs along shelving rocks and whatever projections may afford a foothold, however precarious. It is maintained in the neighborhood that objects referable to the aborigines have been found in this cave.

FALLS.

There was a small site at the mouth of Buttermilk Creek.

FLAT ROCK.

We shall now cross over to the west side of the river and follow its course down to West Pittston. About a mile west of Falls, going up-stream, there is a long craggy bluff rising more than a hundred feet above the water. The most prominent point on this ridge is locally known as Flat Rock and as it commands a superb view in all directions, including miles of the river, it is supposed to have been used by the Indians as a lookout.

CORAY'S CREEK.

There is a camp site half a mile below the mouth of Coray's Creek, on the Coray farm.

THE GREAT BEND OF THE RIVER.

Along the bend of the river, some three miles north of West Pittston, vestiges of prehistoric occupation were found all over the flats as far south as the mouth of Ofendorfer's Creek. These flats extend for about a mile and belong to the A. I. Stanton estate.

GENERAL CONCLUSIONS.

We have now briefly surveyed the archaeological field within Susquehanna River valley all the way from Falls to Nescopeck by giving a summary of all the well known aboriginal stations here situated. Obviously, at this late day, such a survey was bound to be exceedingly fragmentary since numerous sites can no longer be recognized, having become obliterated long ago. And, indeed, may we not be reasonably certain that many a camp, now vanished and wholly unremembered, occurred, say, on the banks of the tributary streams between the river and the foot of the hills?

Considered collectively and disregarding the time element, this complex of stations is apt to lead to wrong conclusions with reference to the relative density of the local aboriginal population prior to the coming of the white man. To guard against any such erroneous conceptions, several considerations are to be kept in mind. In the first place, it is to be recognized that this multitude of sites within the valley represents an ultimate result, e. g., the climax to an accumulation that had been going on for unnumbered centuries.

There was a time, indeterminably long ago, when Wyoming Valley and the country round about had never yet been trodden by human feet. It was a virgin land, peopled only by the beasts of the forest, the creatures of water and air.

But, eventually, there also came a time when man actually set foot upon this region. Could we but divine when this event took place, the problem most hopelessly beyond human ken and one of the most momentous in its bearing upon American prehistory, would at once be solved. For aught we know, it may have been only five centuries ago or as far back as fifty. One day, however, man appeared to be followed by others as adventurous as himself.

Thus, at some remote date, began the occupation of the valley and in its train came the first tell-tale marks, vague and uncertain, the interpretation of which furnishes our only clue regarding early man. Presumably, the first to penetrate this primeval wilderness were hunters, who, finding the land rich in game and to their liking, brought their kin along to take up their abode if only for a while. By and by, they were joined by others who pitched their tents along river and stream. Thus, they came and went, always shifting, for the Redman was more or less of a nomad within the territory he chanced to occupy.

In the lapse of centuries and with the influx of additional hordes an ever increasing number of sites was taken possession of, now concentrated into villages, now scattered far and wide over the valley. Though some of these stations seem to bear witness to prolonged or recurrent occupancy, most of them, no doubt, were transient, for the aborigine was, as just remarked, of a roving disposition, fixing his wigwam now in one place, now in another. Accordingly, a single family may have left traces in many spots and a comparatively small number of folk dwelling here over a great length of time may have dotted all the countryside with the vestiges of their former activities. Not only that, but it is conceivable that occasionally there would take place a general exodus from the region, when not a single savage would be found living hereabouts.

On these grounds, then, it must be clear that the camps, large and small, located in the valley, had at no time been occupied simultaneously for, surely, the aboriginal population was never numerous enough to establish settlements of such proportions at any one time. At first blush, it is true, this ensemble of multitudinous sites within a comparatively limited area is apt to suggest a teeming population, but the impression thus evoked does not accord with the facts. What we observe is in reality the final outcome of an occupation that had lasted through an indefinite number of centuries. In short, these camps belong to different periods; some of them are doubtless very old, while others were still in use when the white intruder came to claim the land. To repeat, by way of emphasis, many of the more favorable sites were frequently resorted to so that their history is one of occupation, abandonment and re-occupation. Yet there is to-day no chance to determine even roughly the relative age of any of them, barring those that were established during the historic period, of which we have authentic records.

ADDITIONAL SITES.

The multiplicity of camps and villages once thronging the shores of the Susquehanna, within the territory in question, is proof convincing of an intense aboriginal life. And an attractive region it was, for the river, then swarming with fish, was a potential food supply that could always be depended upon when other sources failed. Besides, being a navigable stream, it afforded a convenient route of travel and communication with neighboring tribes.

That the sites thus situated constituted all the more important ones and that, consequently, those of lesser significance lay at some distance from the river, is an assumption apparently warranted by the facts. Unquestionably, there was a multitude of such minor camps, distributed along the banks of tributary streams and ponds, yet, excepting a few, all traces of these have long since been blotted out and there are no traditions as to their former whereabouts.

When tramping the mountains in quest of rock shelters, the researcher could not help noticing some of these old camping grounds. Most of them were casual discoveries, but apart from mapping them, he usually passed them by. His main task being rock shelter work, he made at first no attempt at a systematic investigation along this line. It was not until he was quite certain of having exhausted the possibilities of the rock shelter field that he began to devote some time to these open encampments. Thus not a little attention was given to the region about Tunkhannock as well as to that about Nuangola Lake and other sections of Luzerne County.

(A) THE COUNTRY ABOUT TUNKHANNOCK AND EATONVILLE.

As this region used to be replete with the mementoes of the savages, tending to proclaim it as the theatre of considerable prehistoric life, it was deemed advisable to explore it archaeologically, with an eye, in particular, to the distribution of sites and the character of the remains recovered therefrom in so far as these were available for study in local collections.

It is a picturesque stretch of country, encompassed by high hills and well timbered throughout save for extensive clearings in the valleys, where man has made his home. Some two miles east of the borough of Eatonville, the Susquehanna pursues its southward journey, flanked on both sides by wooded elevations, now rising from the water's edge, now falling back far enough to make room for bottom lands or flats.

It is on one of these flats that the village of Tunkhannock stands. In regions so rough and wild, where level spaces are few and far between, the aborigines could not find many suitable camping grounds and they often had to make shift as best they could. It is not surprising, therefore, to find that smooth tracts of land, particularly if they occurred along the river valleys, were eagerly resorted to, a fact amply manifested by the cultural remains there to be encountered.

Such spots were in great demand. They were favored localities, often occupied by villages and therefore of much archaeologic interest.

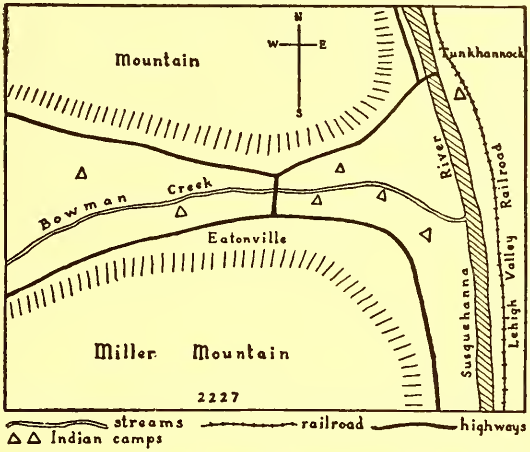
Since the present town of Tunkhannock lies on just such a bit of country, with an even enough surface to comply with all the necessary conditions of inhabitation, it is but natural to expect, in the light of what has been said above, that the savages should have picked this place as a proper site for their encampments. And so they did, precisely as did the whites after them.

According to the reports of those who are familiar with this section and its history, the banks of the river were once dotted with camp sites great and small, all of which yielded prehistoric remains of many types more or less profusely. The largest collection of archaeologic objects secured in this vicinity is that of H. F. Metcalf. It numbers thousands of specimens, among them extremely rare ones like complete pots, pipes and bannerstones. As usual, most of the old Indian sites have been obliterated long since and amid the few that are still distinguishable and even now yield an occasional relic or two, there is pointed out one a short distance below the town near the river's bank.

In view of the abundant harvest of articles of Indian manufacture garnered at Tunkhannock and its immediate environs within the past few decades, there can be no denying the conclusion that it was anciently a centre of aboriginal activity, second only to that of Wyoming Valley, though much more limited in extent than the latter. In proportion to its smaller size it seems to have yielded not only as great a multitude of artifacts, but the variety of types noted hereabouts compares favorably with that exhibited by Wyoming Valley.

It is clear that all this mass of cultural material could not have accumulated in the course of a few years or even decades, rather, as in Wyoming Valley, it hints at a prolonged occupation, lasting, perhaps uninterruptedly, through many centuries. And, no doubt, the fact that here the valley widens, forming broad bottom lands, is to be assigned as one of the main reasons for their having concentrated at this point.

Nor is the district west of the river devoid of the testimonials of the Redman. To him, in his natural estate, it must have been as fine a spot as any he had come to know. Bowman's Creek, flowing in from the southwest, approaches



Sketch of Eatonville and vicinity. Scale—About an inch to a mile.

the river through a narrow valley, hemmed in by mountains rising sharply in places. Near Eatonville, about a mile from the river in an air line, the hills draw back and the valley opens out, while the creek, now on its final lap, meanders through the broad lowlands and debouches into the Susquehanna a mile or so below Tunkhannock.

It is worth noting that the junction of streams often marks the site of prehistoric camps, of spots once active with ancient life. The reason for this is not far to seek, if we remember that the Indian trails generally followed the water courses and that, therefore, the point of confluence of streams would frequently be the point where these ancient pathways converged.

At all such intersections camps or villages were likely to spring up, even as they do in our own time.

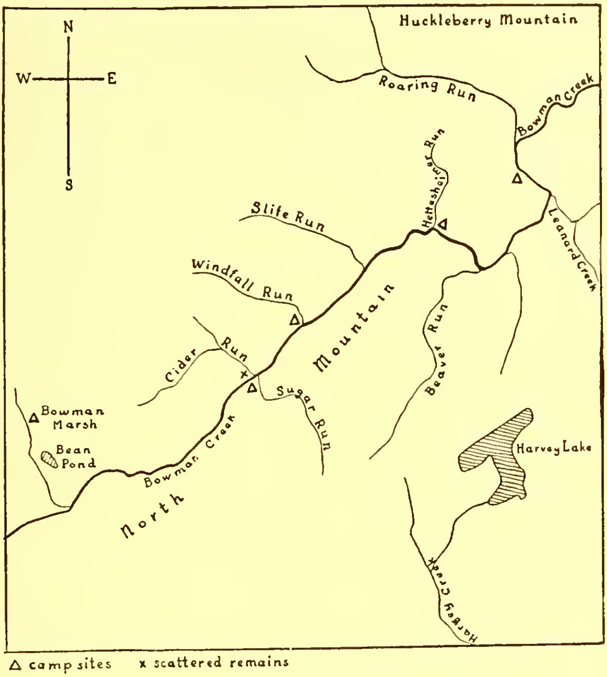
And what do we observe in this region? In conformity with the above rule, we find a massing of sites along the lower course of Bowman's Creek near its junction with the Susquehanna. From what could be learned, numerous relics had been gathered in the past along both its banks for a distance of several miles from its mouth, and the writer, after a hasty inspection, was able to identify no less than four sites within something like a mile from the river, three of them south of the creek.

What may have been a camping ground of some importance lay on its south bank, about three miles from the Susquehanna. Among the objects recovered therefrom were many beads. Another camp occurred north of the creek on a level upland field, more than three miles from its mouth. Hundreds of arrow points and not a few tomahawks were here picked up. For aught we know, camp fires may have been kindled in scores of places along the last four miles of the creek, but whatever their exact number, the fact remains that the region about Tunkhannock and Eatonville was anciently the scene of much aboriginal life. It should be added that the writer was handicapped in his work, because geologic contour maps are not yet available, the area being still uncharted.

(B) ALONG BOWMAN'S CREEK.

The sites now to be discussed lie all of them in a rough and hilly area, the most prominent feature of which is North Mountain, ranging southwesterly for a score or so of miles from near Eatonville, on Susquehanna River. It is a ridge topped by many summits, some of them 2400 feet above the level of the sea.

A deeply trenched narrow valley, ranging from 700 feet to more than 2000 feet in altitude, traverses the whole length of the mountain, parallel to its trend, dividing it into two oblong strips, each from three to five miles in width. The creek itself is fed by numerous affluents right and left, tumbling down the mountainsides that loom many hundreds



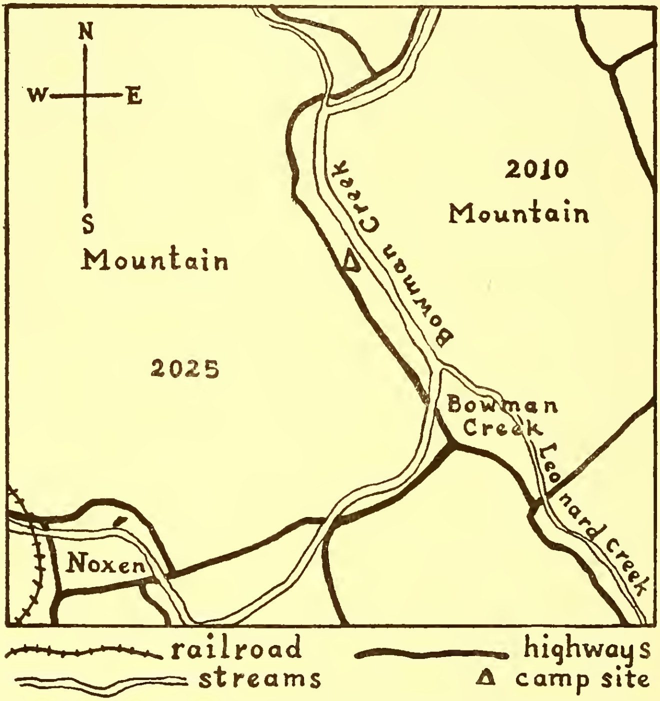
Camp sites along Bowman's Creek. Scale—1 inch to 4 miles.

of feet above its bed. It is a rapidly flowing stream, its channel descending some 1100 feet between Bowman Marsh and Noxen, a distance of about twelve miles.

A cursory survey of the creek-drained valleys resulted in the discovery of five widely separated camp sites, three of which lay on the north bank of the stream. In every case a level spot had been selected, usually at points where some tributary brook joined the creek.

THE LONE CAMP.

A small camp, apparently quite isolated from others, was located on the west bank of Bowman's Creek, 900 feet above the tides, about two miles northeast of Noxen, as the crow flies, but more than three miles by road. Here the stream flows through a narrow valley, flanked by mountains east and west, more than two thousand feet high. The signs disclosing the Redman's whilom presence at this spot consisted in nothing more pretentious than a few chips and chunks of raw material.



The Lone Camp. Chart giving location of camp site on Bowman's Creek. Scale—1 inch to a mile.

NOXEN.

The next site noted in the valley was at Noxen, near the confluence of Hettesheimer's Run with Bowman's Creek.

WINDFALL RUN.

Another site is four miles farther upstream at the junction of Windfall Run with the creek.

SUGAR RUN.

A site on the south bank of the creek, where Sugar Run empties into it. On the opposite shore, where Cider Run flows down the hillside, scattered relics have been found.

All of these sites are in Monroe township. It is worth noting that none of them seemed to give evidence of prolonged occupancy, as revealed by abundant remains. Being far removed from Wyoming Valley and other centres of primitive life, they mark most likely the transient stopping-places of hunters, for in those days North Mountain and environs was a famous game preserve, the habitat of many species of fur-bearing animals.

BOWMAN MARSH.

A site of supposedly unusual interest, one unfortunately not visited by the writer, is claimed to have been situated on what is known as Bowman Marsh, near the headwaters of Bowman's Creek, on North Mountain, 2060 feet above tide-water, in Ross township. Although to-day this site is buried under a thick layer of moisture-loving vegetation, Mr. W. R. Ricketts, of Forty Fort, is authority for the statement that up to some fifty years ago it was in quite a different condition. While now swaly, it was then a dry patch of ground bare of all peaty growth and presumably such as the Indian knew it. Then it was that numerous stone implements and pottery fragments were found littering its surface, indicating clearly enough the character of the locality as having been a much frequented camp.

(C) FAIRMOUNT TOWNSHIP.

A site is reported as being on the E. G. Smith farm, near Sand Springs, at Fairmount.

(D) HUNTINGTON TOWNSHIP.

Of the many camps, anciently dotting the banks of Huntington Creek, the following are reported:

An important site on the Bidlack farm, on the flats along Huntington Creek, five miles below Huntington Mills. Arrow points, skinning knives (celts), tomahawks, rubbing stones, mortars, mullers or corn crushers, hoes and pestles have here been collected. Judging from the quantities of primitive farming tools, the Indians, once dwelling here, must have been an agricultural folk.

A village site at Southdale, near a big spring, in a narrow valley, in lower Huntington township, some eight miles west of Shickshinny. The profusion of chips and other refuse of implement-making, noticed at this place, seems to reveal a workshop.

A site at Waterloo, on the banks of Huntington Creek.

(E) ROSS TOWNSHIP.

A group of sites was noted at Broadway, not far from the headwaters of one of the easterly affluents of Huntington Creek. Along with hundreds of arrow points and pottery fragments, many skillfully wrought stone tools of rarer type, comprising celts, bannerstones, gorgets and paint cups, have been picked up on the high sandy fields bordering the stream. A tradition, stoutly maintained by some of the old natives is to the effect that this section was the winter quarters of the Redmen for many miles about and that those who during the summer months fished along the Susquehanna in the vicinity of Shickshinny invariably came here at the approach of winter.

A site at Bloomingdale, a mile south of Broadway, on J. H. Culver's farm.

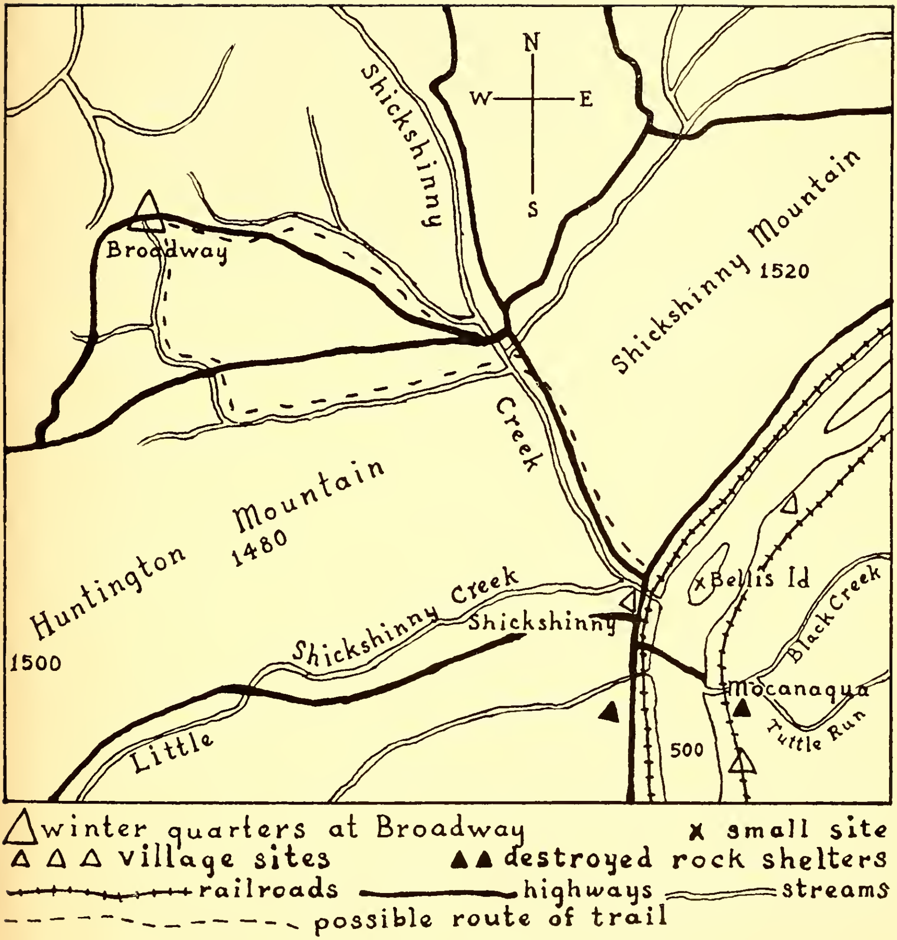
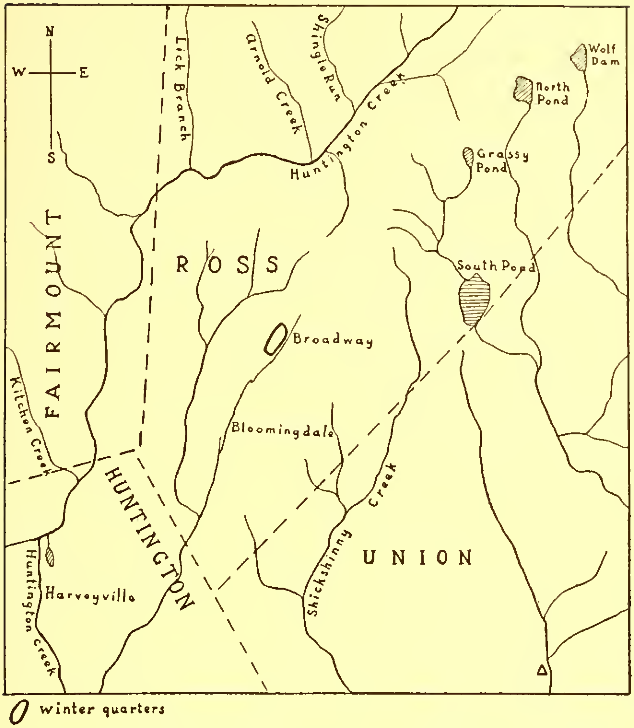


Chart showing site of supposed aboriginal winter quarters.
Scale—1 inch to a mile.



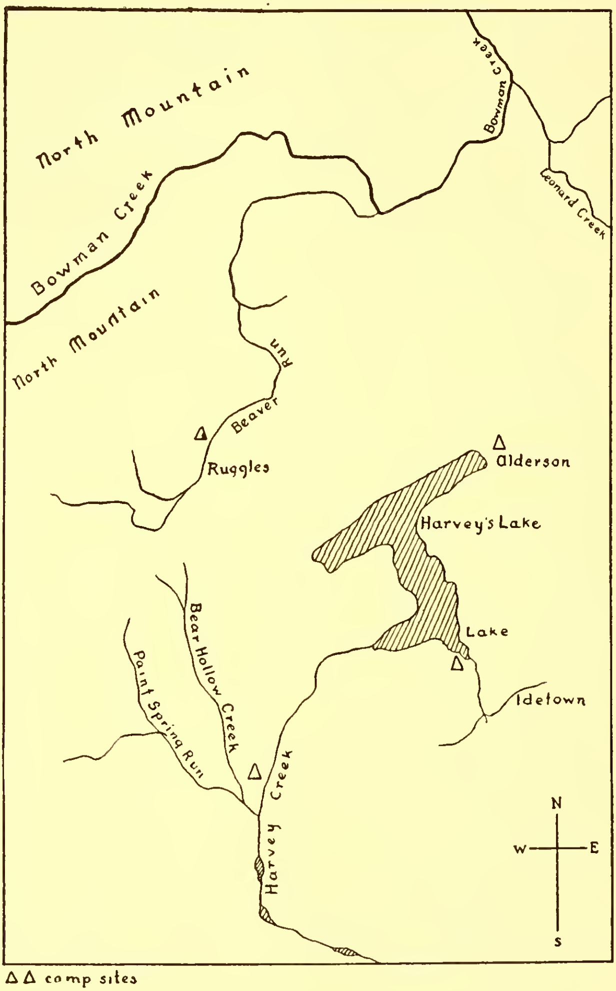
Map showing situation of supposed winter quarters at Broadway, Ross Township. Scale—½ inch to a mile.

(F) HARVEY'S LAKE AND VICINITY.

This lake was formerly known as Shawanese Lake for the reason, no doubt, that the Shawnees of Plymouth and West Nanticoke were wont to come here for the purpose of fishing.

Only two sites have come to the knowledge of the writer. One of these is near Alderson, at the northern end of the lake, on D. C. Smith's farm, Dallas township. The other is at Lake, at its southeastern extremity, on the Fox farm, Lake township. At this latter place a dugout canoe was lifted out of the mud near the shore some forty years ago.

A mile or so west of the lake, near the foot of North Mountain, at Ruggles, in Lake township, there is a site on the Shook farm.



Map of Harvey's Lake and vicinity showing camp sites. Scale—½ inch to a mile.

Another one lies on Harvey's Creek, near its junction with Bear Hollow Creek, about two miles from the outlet of the lake.

(G) HUNLOCK CREEK.

A site on the west bank of Hunlock Creek, near its source, midway between Pike's Creek and Silkworth Lake, in Lehman township.

(H) TRUCKSVILLE.

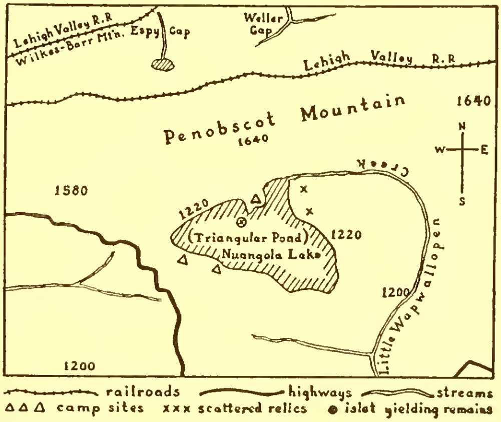
From reports received by the writer there is a large prehistoric site on Wesley Sutton's farm at Trucksville. Scores of artifacts are said to have been found at this place.

(I) NORTH MORELAND TOWNSHIP.

Sites are reported from Vernon, on the A. T. Sickler farm, and from Centremoreland, on the D. C. Smith farm.

(J) NUANGOLA LAKE.

This alluring sheet of water was one of the haunts of the Redman, a fact, attested by numerous mementoes found scattered about its wooded shores. It was a goal sought for a very definite purpose, namely, the assurance of rich hauls of fish it held out to the primitive fisherman.



Map showing Indian sites on shores of Nuangola Lake. Scale—1 inch to a mile.

Nuangola Lake, sometimes called Triangular Pond because of its contours resembling a triangle, lies at the northern margin of a rolling tableland, averaging 1200 feet above sea level. Penobscot Mountain, more than 1600 feet high, looms immediately to the north, overlooking this belt of elevated land that stretches southward for five miles where it is bounded by Nescopeck Mountain, a long wooded ridge, attaining an altitude of 1920 feet. The plateau, thus rimmed by high elevations north and south, is drained by the headwaters of Wapwallopen and Little Wapwallopen creeks, the latter issuing from the lake at its northeastern extremity. They are separate streams flowing into the Susquehanna some five miles below Mocanaqua.

Being so charmingly environed, in the lee of Penobscot Mountain and with a fine stand of timber all about, it is not surprising to find that Nuangola Lake should, within recent years, have become the centre of a colony of bungalows. While grading the land near its banks and digging foundations for houses, many objects of primitive origin came to light, revealing plainly the former presence of the Redman. These remains were especially plentiful along the south shore where a group of camp sites appears to have occurred.

In the past few years thousands of chips have been picked up hereabouts, of flint, chert, quartz and some jasper, together with many finished specimens, the arrow point preponderating, as usual. Most noteworthy was the finding of a stone mortar, viz., a boulder with a shallow basin or cavity on top, hollowed out by pecking and used for grinding corn.

Another site lay on the north bank, at a point where a tract of rocky headland runs out into the lake. Occasional finds have been made also along the east bank south of the outlet of Little Wapwallopen Creek. On a rocky islet, barely a few square meters in extent, and formerly connected with the mainland, for the level of the pond has since been raised, Mr. Lee Turner, of Wilkes-Barré, discovered some ten net-sinkers cachéd under a pile of rocks.

Thus far, the south bank of the pond has proved most prolific in finds, perhaps on account of its having been disturbed the most, but possibly also because the savages found it most suitable for camping, it being less rough under foot than elsewhere. Doubtless, in the course of building operations more than one site has been wiped out, totally unperceived, maybe, but others may yet be discovered when breaking ground for new cottages.

Although the survey of this section was somewhat cursory, there is sufficient evidence to show that the savages often visited this pond. Besides, it is quite certain that they were enticed here by the lure of rich catches.

(K) NESCOPECK CREEK.

A site is reported as lying on top of Mill Mountain, near St. Johns along Nescopeck Creek, Butler township.

(L) WEST HAZLETON.

Sites have been noted along Gravel Run, West Hazleton.

(M) CLIFTON.

A camp was discovered in 1833, near Clifton, then in Luzerne, now in Lackawanna County, on Bell Meadow brook. There were traces of several large fireplaces, containing many bones of deer and elk, many of them cracked for the marrow and charred by the action of fire. Two whole pots were found as well as many fragments, and the ground was strewn with chips.

(N) THE FISHING CAMP BELOW STODDARTSVILLE.

Less than a mile above the Anglers' Haunt on Lehigh River and about two miles below Stoddartsville an aboriginal fishing camp was situated as manifested by a profusion of multifarious relics attributable to the savages. The spot was well chosen, a broad and comparatively level plot of ground on the east bank of the Lehigh, in the angle formed by it and Tobyhanna Creek, which here discharges its waters into the river. In the process of leveling this tract, preparatory to laying out the Boy Scout camp, in 1920, numerous objects of a prehistoric character were brought to light, including scores of arrow points, rude stone axes and pieces of pottery. Particularly noteworthy were the large quantities of chips and rejects seen littering the fields or buried in the subsoil. This sort of refuse plainly betokened a workshop where the ancient artificers were busy replenishing their stock of utensils.

A considerable proportion of the material employed consisted of jasper of different colors which was most probably secured along the lower reaches of the stream. To be precise, however, it was not the disturbance of the surface soil, wrought since 1920, that afforded the first intimation of the Redman's quondam presence hereabouts, for many years previous to that date remains of various types had been not infrequently picked up on these fields.

Evidence such as this warrants the inference that this particular locality was often visited by the savages and the reason why they did so is not far to seek. In very truth, it is a foregone conclusion that they came here chiefly for the purpose of angling. In those days the Lehigh was a different stream from what it is to-day. It then wound its way through a primeval forest, composed of trees at once venerable with age and remarkable for size, and this forest was well nigh interminable spreading in one vast expanse from the Atlantic to the Great Plains.

This heavy cloak of woodland growth naturally tended to conserve the waters of the river with the result that it ran full and strong at all seasons of the year, ever carrying such volume of water as is observed now only occasionally, that is to say, after long continued rain storms. As a consequence, it then teemed with multitudes of fish among them the much coveted trout.

The coming of the white man was destined, however, to change all this. With the giants of the forest laid low, the

Lehigh is now usually a dwindled shallow stream, tumbling along its bouldery channel, and the finny tribes, once so abundant throughout its length, have all but vanished.

In view of the apparent importance of this old fishing camp at the junction of the Lehigh and Tobyhanna, we may take it for granted that several trails converged near here, nor is it at all unlikely that one of these threaded the mountains separating this stream from Wyoming Valley.

BURIAL PLACES.

The aborigine took the best of care of the graves of his departed ones, fearing lest any negligence in this respect would offend their spirit. For to a being so deeply steeped in superstitious fear and so firmly believing in animism, spirits were real enought entities which it was wise to appease for the sake of avoiding harm.

The simple savage, living always in close touch with Nature and her life-giving properties could not but regard health as the normal condition of man. To his untutored mind the transition from life to death was a mystery he could not fathom. He was incapable of grasping the idea of natural death, that is to say, of death as a necessary incident in the course of Nature. To quote Dr. Brinton, "in all primitive American tribes there is no notion of natural death. No man 'dies,' he is always 'killed'. When a person dies by disease, they suppose he has been killed by some sorcerer or evil spirit." Not so, however, when they met death at the hands of an enemy. Then they encountered their fate face to face, with none of that mystery about it which was so dreadful to the superstitious savage.

Aside from the historically known burying grounds, the whereabouts of which the Redmen themselves had pointed out to the earliest settlers, as, for example, the aboriginal cemetery at Minisink, on Delaware River, eight miles below Port Jervis, in New Jersey, or the Shawnees burial at Plymouth, in Wyoming Valley, the discovery of an Indian grave is largely a matter of accident, due to the disturbance of the subsoil. Thus bones have been found when grading a street, digging a foundation for a house or building a railroad. They have even been turned up by the plow or laid bare by washouts due to torrential rains.

Wherever skeletal remains have been unearthed, they were either in single graves or in regular cemeteries, sometimes containing hundreds of bodies. The former may be encountered almost anywhere, betokening, perchance, the erstwhile proximity of a small camp or lodge site or else, it may well be, marking roughly the spot where some redskin was overtaken with death. The latter are, as a rule, in the neighborhood of settlements or villages, once quite permanently occupied, or even in the very midst of them. One of the striking exceptions to this rule is afforded by the occurrence of a large Indian burial place on the top of Jenny Jump Mountain, miles away from the nearest aboriginal village site, in Warren County, New Jersey.

When a prominent Indian died far from home, it was not unusual for his comrades to carry his bones back to his former abode and inter them beside his kindred. The graves were shallow, hardly ever exceeding three feet in depth and it must have been a tedious operation with nothing better than crude stone spades and hoes at their disposal. Even so, the ground had to be carefully examined to find the places where digging was comparatively easy. Accordingly, the remains are mostly found in soil consisting of fine sand or gravel. Under all circumstances a dry spot was selected, one high enough to be beyond the reach of overflows.

Speaking of the disposition of the body in the grave, no fixed rules seem to have been observed. In some cases the remains were found stretched out full length, lying either on the back or on the side. Sometimes they were in a sitting posture with the knees flexed or drawn up to the chin. Neither does it appear that any strict customs were observed in the matter of orientation. Though the heads or faces in many of the graves were found turning toward the rising sun, the examination of hundreds of burials in the States of New York, New Jersey and Pennsylvania has revealed every kind of position with the head facing any point of the compass.

It is popularly believed that articles were invariably buried with the dead. Far from this being the case, most graves contain nothing but the bones. Occasionally, such objects as beads, shells, arrow points and pottery vessels are recovered.

After these preliminary remarks we will turn our attention to Wyoming Valley, marshaling whatever data have come to hand anent the last resting-places of its ancient dwellers. The account the researcher is able to render on this subject is most fragmentary, inasmuch as his knowledge is restricted to an amazingly small number of such sites. Without question, the sum total of information extant is much more comprehensive than his own scant notes would suggest and could all this lore now distributed among many individuals be assembled, it would conceivably amount to a great deal and help fill some of the gaps existing in the local archaeology.

While this is reasonably certain, it would seem nevertheless that there is a dearth of information regarding Indian burials in the valley and its environs. Notwithstanding a thorough investigation the writer has obtained intelligence of only ten localities where bones of undoubted Indian origin have been exhumed. Three of these are in Wyoming Valley proper and the others are scattered throughout the surrounding hilly area.

Making all due allowance for burials possibly known but not reported, the fact that in all the valley but three of these should be generally known is, to say the least, anomalous. It contrasts strangely with all its prehistory in so far as it has been worked out. For, surely, in a region that had yielded enormous quantities of industrial remains of every variety, that in the lapse of untold centuries had witnessed the coming and going of thousands of Redmen, many of whom died and were here buried, that had been inhabited more or less permanently, as disclosed by the vestiges of their former abodes, observed on all hands, in such a region one would naturally have expected the occurrence of numerous burial grounds.

As this supposition, apparently so legitimate, does not at all appear to have been borne out in the case of Wyoming Valley, though much more so in the case of its environs, from which no less than seven prehistoric cemeteries have been reported, one is apt to wonder, what became of them.

In trying to answer this question, several explanations at once suggest themselves. To begin with, it is to be remembered that Indian graves can no more be recognized. Though originally marked by heaps of stones, head posts and, occasionally, by an encircling fence, all these external signs have long ago disappeared partly under the influence of atmospheric agencies, partly through the activities of the white man. Again, in the case of the more ancient graves their contents have moldered away by natural decay and become undistinguishable from ordinary soil. Undoubtedly, also, many a grave, fortuitously come across here and there, has never been reported or else, maybe, its remains were thought to be those of a white man.

Further, there can be no question that quite a few graves still await discovery, for man, ever busy improving the face of the earth, is bound eventually to dig through every cubic foot of surface soil. Lastly, it is to be noted that tradition is singularly mute on this matter of graves, for it has but rarely conveyed to us any definite information in relation to their exact site or as to those who used them.

COXTON.

A long time ago, a considerable number of graves were detected on the Coxton Flats, at the site of Asserughney, the old Lenâpé town. Presumably, the bones were those of the people who lived here until about the year 1754. Steatite bowls are said to have been deposited with the remains.

PLAINSVILLE.

Bones assignable to the Redman were discovered years ago on the William McCulloch farm, at Plainsville, formerly called Jacob's Plains.

FOOT OF SIMPSON STREET.

Aboriginal human remains came to light when making excavations near the foot of Simpson Street, South Wilkes-Barré, in 1923 and 1924. No complete skeletons were recovered, it is learned, and the bones appeared to be scattered pell-mell, owing to disturbances of the subsoil.

PLYMOUTH.

One of the most widely known prehistoric cemeteries in this part of Pennsylvania is situated at Plymouth. Being in close proximity to the ancient Shawnee village, most of the bones interred there belonged, doubtless, to members of that tribe.

FOREST SCHOOLHOUSE.

Graves of the Indians are known to exist on the L. I. Smith farm, near Forest Schoolhouse, Lehman township.

ZEBA SMITH FARM.

There is a small aboriginal burying ground on the Zeba I. Smith farm, Lehman township.

SHICKSHINNY.

The Redman, once dwelling in this section, buried some of his dead on Parker Hill, Shickshinny.

NESCOPECK.

On the Baver farm, two miles southwest of Nescopeck, prehistoric graves were encountered years ago.

SMITH FARM.

Ancient Indian graves have been noted on the Smith farm, below Nescopeck.

UPPER PART OF CAPOUSE.

A group of graves was discovered in 1795 on the old Van Stork farm, on the north bank of the Lackawanna, in the upper part of Capouse, Lackawanna County.

PROBABLE ROUTES OF TRAILS.

In the foregoing we have expatiated on the old Indian camping grounds that once dappled the banks of the Susquehanna within Wyoming Valley and beyond, along with a few others that occurred here and there amid the environing mountains, learning something of their distribution and probable character. We observed that in the valley itself the vestiges of camps are so numerous as to mark this region as one of the Redman's favored districts. Nor did we omit to point out that not all the sites in this or, indeed, any other large district were ever contemporaneous in the sense of all having been occupied at the same time. Far from it, since the aboriginal population, here as elsewhere, was too scant and therefore utterly inadequate to maintain more than a small proportion of these sites at any one time. Then, also, by reason of the Indian's nomadic mode of life, camps were always being shifted. Owing to these fluctuations of primitive society it often happened, without question, that now a region would witness a great influx of people, now a more or less general exodus.

We will now proceed to the task, however arbitrary, of fixing the presumable routes of the ancient pathways known to have traversed this tract of country. By the very nature of things, nothing certain can ever be demonstrated concerning these, as our clues are meagre, being based chiefly on the distribution of camp sites and considerations of a topographic character. Yet, albeit much is left to speculation, aided by such tokens, we may now and then be confident of having more or less approached the truth. Before entering upon this subject more closely, it will not be amiss, however, to preface a few remarks relating to trails in general.

GENERAL FACTORS.

Among the many moot problems confronting the student of American archaeology, that of the probable location of ancient trails is one of the most obscure. While once these prehistoric highways were very real and easily discernible at least to those who used them, there are nowadays practically no traces left indicating the course they took. By their very nature they are evanescent and exist only when in constant use. As soon as they ceased to be trodden by the feet of those who blazed them, vegetation began to obliterate them. Efforts at this late day to determine their whereabouts are thus largely conjectural. At the best, as just remarked, we can only draw inferences derived mainly from the distribution of camp sites and the topography.

When the early settlers arrived on the coast of this Continent, they found these trodden paths, penetrating the wilds in every direction. Though rough and crooked in places, these paths proved of inestimable value to men who, transplanted to a virgin land, found themselves cut off from all the comforts and resources of European civilization and whose foremost concern was to tame the wilderness. To them they rendered the important service of indicating the natural and most feasible courses for their future wagon roads. In time these became the post roads, which ultimately developed into highways.

Invariably the Redman's trails were narrow, not more than a foot or two wide, and they were often deeply sunken by long-continued usage. Yet such as they were, they complied with the primitive demands of the savage, affording him passage and providing the means of intercommunication between the native settlements for the purpose of trade and general intercourse.

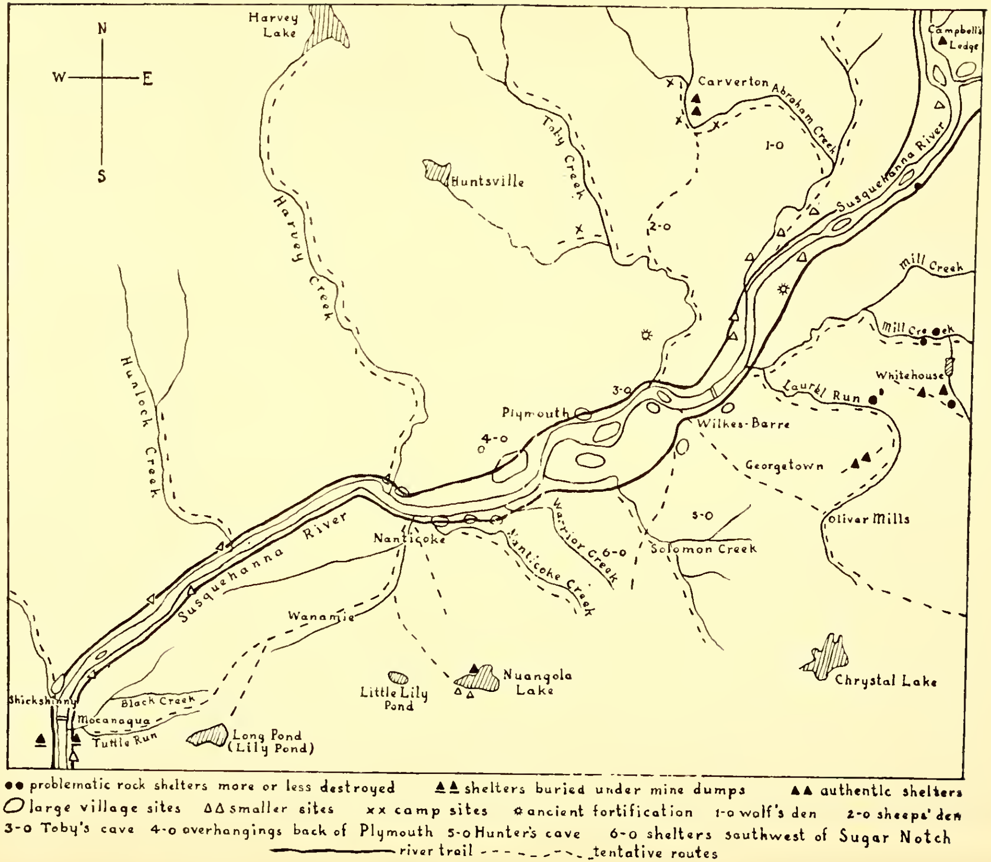
Originally, no doubt, many of these paths were due to the agency of wild creatures, like deer, bear and buffalo, and these were therefore in a large sense the first road builders. It is, in fact, quite true that the buffalo blazed the way from the Atlantic to the Pacific. Accordingly, all trails came to be traveled alike by savage and brute. As for what is often referred to as the war path, it was quite likely nothing other than the runway of the wild animals of the forest or, maybe, some little used passage by mountain and water course, remote and hidden, permitting of stealthy approach and safe retreat.

INFERENTIAL EVIDENCES.

In view of the absence of any direct observation of the trails themselves, our attempt to reconstruct them, figuratively speaking, can at best be but approximately correct. Most often it will be vague, speculative and vulnerable. In discussing camp sites, rock shelters or graves, we usually stand on solid ground with substantial tell-tale marks coming to our aid, serving to elucidate many an obscure point. In the matter of trails, on the other hand, we are wholly dependent upon indirect or circumstantial evidence, a course of procedure implying considerable uncertainty in the conclusions reached.

Certain it is, however, that these trails were traced with the unerring instinct of the woodsman, now skirting the foot of a hill, now swinging this way or that to avoid bogs and rivers and even turning around rocks and fallen trees. In most cases they followed the water courses through the valleys, usually clinging close to their banks, and swerving only where physical obstacles interfered, and they were sure to make for the easiest crossing of streams and wading-places.

Since all primitive life converged toward the river valleys, it is quite obvious that along them trails both great and small were most numerous. That many lakes were formerly



Map of Wyoming Valley and vicinity showing course of river trails and supposed routes of some secondary trails. Scale—1 inch to a mile.

skirted by the Redman's paths is equally certain, for they were all visited by him. Permanent villages and the larger camp sites, in so far at least as they lay within a limited area held in common by a clan, were unquestionably connected by well frequented paths. It follows, of course, that the more favored a district the greater was the number of aboriginal highways leading toward and intersecting it. Conversely, it must be true that least favored sections were those with the fewest number of trails. Yet there were doubtless many trails passing through inhospitable regions merely for the sake of direct routes between principal districts.

A salient feature of all these trails was, as already intimated, the fact that they took advantage of every favorable contour. Safe guides helping to locate their course, are therefore the lines of connection along the most natural and easy grade concomitantly with the known positions of native residence.

THE GREAT RIVER TRAILS OF WYOMING VALLEY.

What, then, do we find in Wyoming Valley? Recalling that there is here a more or less continuous succession of camps along both sides of the river, may we not safely assume that paths wound along both its banks? And, surely, these camp sites are numerous enough to give us a fair idea of the course they may have taken, enabling us to determine their situation with some degree of accuracy.

Fortunately, we are in possession of somewhat more tangible data regarding the actual occurrence of such thoroughfares, the former existence of which is indeed deducible from the evidence such as it is. On an old manuscript map, already referred to repeatedly, of Wyoming and Lackawanna valleys, showing forts, Indian villages and early roads prior to 1776, these river trails are clearly traced, thus confirming our above inferences as based on distribution.

Let us examine these river avenues a little more thoroughly. As indicated on the chart, the southerly one proceeded from a locality, anciently called Capouse Meadows, on the south bank of Lackawanna River, now within the City of Scranton. At this point it forked, one arm fording the river at the site of the old Munsee Indian village, near what is to-day Providence, thence bearing northward, past the Munsee burial ground previously mentioned as lying on the Van Stork farm, through Leggett's Gap at Abington to another prehistoric settlement yclept Oquago, New York, not far from the present town of Windsor. This appears to have been a war path and like most such paths, it kept to high ground, instead of valleys and ravines. Its easterly continuation, also a war path, running from Capouse Meadows to Wallenpaupack and Delaware River, will be dealt with anon.

THE PATH SOUTH OF THE SUSQUEHANNA.

The other branch hugged the south shore of the Lackawanna, through Stafford Meadow at Roaring Brook, to a point just below its junction, about half a mile to the south of Asserughney, the whilom Lenâpé encampment at the foot of Campbell's Ledge. Here it entered Wyoming Valley, approaching the Susquehanna at the site of Pittston, where stockades were built in the year 1776, running for miles along its banks, now lined by the tracks of the Lehigh Valley railroad, past the Unami village, known to have been occupied in 1757, thence past the mysterious fortifications of unknown date and origin, about opposite Forty Fort, to the mouth of Mill Creek, at Midvale, which, in 1769, was the site of Fort Ogden, thence along what is River Street, Wilkes-Barré.

This particular section was destined to play a conspicuous rôle in the city's earliest history, e. g., the so called Pennamite wars, arising from the conflicts not with the redskins but between the Connecticut settlers and the State of Pennsylvania. Here a group of forts was erected, to-wit, the Yankee Redoubt, Fort Wilkes-Barré, 1776, Fort Wyoming, 1771, and Fort Durkee, 1769.

At the last named place General Sullivan's road, probably for the most part an improved prehistoric pathway to be treated of later, came in from the south and now the trail would seem to have borne away from the river toward the Delaware Indian village, known to have been existent in the year 1742, thence along the south bank of Buttonwood Creek toward the river, past the encampment of the Nanticoke tribe of Indians occupied as late as 1742, and so on to the mouth of Nanticoke Creek, where it left Wyoming Valley, continuing along the narrow rock-flanked shore of the Susquehanna as far as Shamokin. Thus this path connected all the important camps on the south side of the river save the one at its great bend, about a mile northwest of old Fort Durkee.

THE PATH NORTH OF THE RIVER.

As regards the pathway on the north bank, it is assumed to have taken its start near Wyalusing, far up the river, whence it threaded its way downstream via Tunkhannock, entering Wyoming Valley opposite Campbell's Ledge. At this point it seems to have turned inland, cutting across the broad plain, now the site of West Pittston, but again approaching the banks of the Susquehanna at the borough of Wyoming, whence it ran past several large encampments on Wyoming Flats to Forty Fort, thence to the village of the Shawnee (Shawanese) Indians, dwelling there in 1742, thence to where a blockhouse was built in 1776, across Shawnee Flats to West Nanticoke, where it emerged from Wyoming Valley, skirting the river to Shickshinny and points beyond. This trail connected all the big camps north of the river.

That the aforesaid paths were most important arteries of communication follows not only from their position on the banks of a great water course but from the circumstance that most of the camps noted along their course were of considerable size. In other words, since most large sites were usually situated along the major highways, while many of the smaller ones lay on minor or secondary paths, there is little question that the trails found flanking Susquehanna River represented the principal and most frequented routes of travel in this part of Pennsylvania.

MOUNTAIN TRAILS.

Away from the river, where sites are comparatively scarce, our inquiry into the possible route of the Redman's trails is bound to be beset with difficulties, but here topography often comes to our aid. Obviously, there was once a network of such pathways, branching off to the north and south and leading deviously across the mountains according to the lay of the land. But though this often meant a roundabout, it also meant that in wandering through the wilderness he invariably picked the most convenient route possible, that is, one combining directness with ease. Certain it is that he always followed the lines of least resistance by taking advantage of such natural features as promised an easy passage. We may therefore take it for granted that not a gap but was anciently traversed by a path. Obliterated now are all these trails and as knowledge of their former whereabouts has vanished with the race that made them, our observations on this subject must needs be speculative rather than conclusive.

NORTH OF THE RIVER.

Tradition is emphatic in declaring that on the eve of the Wyoming massacre the copper-colored allies of the English, consisting mostly of Senecas, pounced upon the valley not by way of the Wyalusing thoroughfare, described as skirting the Susquehanna opposite Campbell's Ledge, but via Carpenter's Notch, which intersects the mountain two miles west of the river, between it and the deep intervale of Abraham's Creek and directly north of the borough of Wyoming. That this route would have afforded a more stealthy approach may be readily conceded. Being easily negotiable, it was probably the site of a minor Indian path even as it is to-day the site of a wagon road.

At the lower mouth of this notch, on Kintz's farm in Exeter township, a quantity of flint lock muskets and other relics of pre-Revolutionary date were found buried near the northern margin of the swamp, some forty years ago. While to-day most of this swamp has been drained, it was once quite large, extending along the foot of the mountain and covered with a dense vegetation. As the Senecas are known to have concealed themselves within its tangled growths on the morning of the battle it would not seem improbable that they hid these firearms, possibly spoils of the battle, intending to recover them later.

ABRAHAM'S CREEK.

That a trail skirted Abraham's Creek along the mountain vale down which it flows and so on to the hilly elevated region about Carverton, may be reasonably assumed. At all events, it is commonly believed that the pioneer settlers availed themselves of such a trail when invading the wilderness in quest of new homes. In that case, the present road would have to be regarded as an improvement of the early path, coinciding roughly with the course it took. Again, the two rock shelters and small camp sites noted near Carverton would then have been near the route of this trail.

CARVERTON-LUZERNE.

There is a tradition current among the old-time residents of Carverton and vicinity that another Indian path crossed the mountain in the direction of Luzerne. It is claimed to have run uphill immediately south of the old Saks homestead, on Abraham's Creek, and coming up near the top of the mountain, where, it is said, there was once a salt spring or lick, attracting numerous deer, it bore southwest, threading the stream downhill to its junction with Toby's Creek, thence along the latter to the river valley.

TOBY'S CREEK.

There is little room for doubt that a trail passed up the valley which is drained by Toby's Creek. In places along its course remains of an aboriginal type have been found, sure records of the Redman's erstwhile presence in these parts and giving countenance to the former existence of such a path.

HARVEY'S CREEK.

The sharply defined mountain pass, that is watered by Harvey's Creek and extends northwardly from West Nanticoke, was unquestionably the site of a much used pathway, providing convenient approach to Harvey's Lake, once named Shawanese Lake, and the hunting district round about. Apart from topographic factors, knowledge of which is indeed essential to an understanding of possible trails, the quandam occurrence of large camps at the entrance to this pass and several smaller ones farther up is in itself, it has to be admitted, a weighty argument in favor of such a thoroughfare.

HUNLOCK CREEK.

On grounds quite identical with those just advanced in the case of Harvey's Creek, we may infer the former existence of a path running north from the mouth of Hunlock Creek where, it will be recalled, there was found considerable evidence of primitive life.

SHICKSHINNY CREEK.

Neither can there be any uncertainty in respect of the whilom occurrence of a trail which, commencing at the Indian village, once situated at the mouth of Shickshinny Creek, trended northwesterly along the bank of the stream, through the deep defile between Huntington and Shickshinny mountains.

THE WINTER QUARTERS TRAIL.

An interesting bit of information was furnished the writer by Mr. Laidacker, of Shickshinny, a man familiar with the Indian lore of that district. It was to the effect that aborigines along that part of the valley maintained a well defined trail from the mouth of Shickshinny Creek to their winter quarters, at Broadway, a distance of about nine miles. The earliest white settlers arriving here in the latter half of the eighteenth century, had, it is claimed, first-hand knowledge of this fact and it came to be handed down from generation to generation. The trail leading to it lay, it is said, up Shickshinny Creek for something like six miles, after which it cut across country, following depressions between the hills. It was an uphill path, rising from five hundred feet at Shickshinny to twelve hundred feet at Broadway. In addition, it is stated that the savages crossed the river by way of Bellis Island, where it was most readily fordable.

BOWMAN'S CREEK TRAIL.

It is well known that aboriginal travel was mostly along river valleys and streams, the former usually marking the course of the main lines of communication, the latter that of the secondary paths. Northwest of Wyoming Valley there is a rough territory of tumbling hills and narrow dales, well watered throughout. Its principal ridge is North Mountain, a complex of many elevations, most of them over two thousand feet in height. A longitudinal valley, viz., one roughly parallel to the trend of the mountain and drained by Bowman's Creek, trenches it for a score of miles, northeast and southwest. Within this region aboriginal camp sites occur but sporadically, for it was a game preserve, invaded only at certain seasons and those who hunted it did not linger long, having their more permanent abodes in the river valley. The remains found were usually suggestive of small transient camps and workshops such as might be expected in a district set apart for the chase.

Considering the general inaccessibility and the physical asperities of this terrain, we may be reasonably certain of an Indian path once following the one good natural avenue to be met with hereabouts, namely, the valley of Bowman's Creek. From its mouth at Tunkhannock it afforded a relatively easy line of approach to the very heart of this wilderness and the circumjacent mountains could be readily penetrated by way of the ravines abutting on the creek at frequent intervals.

The fact that the testimonials of the primitive huntsman's presence have been detected in various localities along the creek as well as at its mouth, where there was a cluster of sites, tends to strengthen the presumption in favor of a highway anciently passing through the valley in question. Doubtless, also, additional paths entered the hunting district along Bowman's Creek, coming in largely from the southeast and south, that is, from the valley of the Susquehanna where prehistoric life was most active.

WARRIORS' PATH FROM GREAT ISLAND TO WYOMING VALLEY.

A path spoken of in some rare documents dealing with the earliest history of Pennsylvania is the famous Warriors' Path. Starting in the vicinity of the Great Island, it ran eastward from the West Branch of the Susquehanna, at the mouth of the Ocockpachong, across Fishing Creek, called by the aborigines Namescesepong, to Huntington Creek, whence, passing through Fairmount township, it skirted the latter as far south as Harveyville. Here it turned east, proceeding to the old Indian town of Shickshinny, thence northeasterly along the north bank of the Susquehanna to Wyoming Valley.

SOUTH OF THE RIVER.

It may likewise be taken for granted that south of the Susquehanna there was a multiplicity of tracks, once trodden by moccasined feet, tracks that ramified from the great river trail and led athwart Wilkes-Barré Mountain along convenient gaps. Though the location of most of these is shrouded in mystery and can but be guessed at, there are perhaps a few of which we possess some little knowledge, if only for a short section. As to the rest of the course they took, we wot not of.

THE SPRING BROOK TRAIL.

In the absence of camp sites to guide us, topographic features become our main reliance in our attempt to ascertain the possible route of prehistoric thoroughfares. Thus, with respect to Spring Brook or the South Branch of Mill Creek it is solely for topographic reasons that we venture to assume the existence of an ancient trail once winding along its banks. There being no heavy grades to contend with, it would have been a good path to the runways of deer and elk and the haunts of bear, all of which affected the well-watered valleys along the lower slopes of Bald Mountain and Mount Pisgah. And by this self-same path the Redman may have threaded his way back to the Rock Cabin on Mossy Run, a station previously discussed.

THE WHITEHOUSE TRAIL.

While discussing the Whitehouse neighborhood, mention was made of an old road, the Old Plains Road, now all but forgotten. As this section is replete with the mementoes of the aborigines, it was natural to surmise that this road, which started at the upper end of Parsons, may have been an Indian trail once giving access to the two rock shelters here situated. The road continues south across Indian Hill, an elevation directly east of Laurel Run Gap, following Kelly Creek for a short distance, thence striking southwardly across Wyoming Mountain and emerging on the Bear Creek Boulevard at Ten Mile Run. This road may have been identical with that of the old trail likewise supposed to have run this way. At any rate, this would not be surprising, for in the early days the white man was very dependent upon the trails blazed by the Redman and he continued using them long after the latter's departure, improving them speedily, however so as to have them wide enough for his ox-drawn carts. As a matter of fact, many of these wilderness lanes endure to this day, metamorphosed into highways and railroad lines.

THE LAUREL RUN TRAIL.

It is altogether probable that Laurel Run Gap marks the site of an Indian highway leading southwesterly across Wilkes-Barré and Wyoming mountains to Bear Creek and Lehigh River. A deep, clean-cut opening in the hills such as this no Redman was likely to ignore, expert trail finder that he was. It is known, however, that there was at least one other path running from Wyoming Valley to the country about the upper Lehigh, but about this later.

There appears to be just one historical incident tending to hint at the existence of an aboriginal pathway along Laurel Run and through the gap. Though already touched upon, it will be apropos to recall at this juncture that the redskins who kidnapped Frances Slocum, took her, it is believed, to a cave on Laurel Run, where they spent the night, departing the following morning bound for the Indian country to the north. From this we may gather that they followed a trail up Laurel Run. At any rate, encumbered as they were and a rapid flight being imperative, they were not likely to struggle through underbrush away from the beaten track, where progress would have been too slow. Rather, in their anxiety to get away, they had every reason to make use of well trodden paths, both in the valley and beyond.

PECHOQUEALIN-WYOMING PATH.

It has ever been a matter of keen regret that the early missionaries, explorers and traders so generally failed to bequeath to posterity satisfactory accounts of what they observed among the aborigines, then slowly being expelled from the land of their forefathers. Being continuously in touch with these unsophisticated children of Nature, they had unexcelled opportunities to obtain first-hand intelligence pertaining to their mode of life, customs, religious conceptions and traditions, not to speak of the information we might have gained concerning the exact situation of their towns, burial-grounds and trails.

In consequence of their sins of omission on this score, our knowledge of all these matters is woefully deficient and fragmentary with the result that we are for the most part at sea in our attempts to dispel if only some of the darkness surrounding the real character and past history of the vanished race. True, here in Pennsylvania, for example, we have the precious notes of men like Heckewelder and Zeisberger, who labored faithfully among the savages, studying them closely and even compiling a dictionary, however imperfect, of their language, known as the "Indian Interpreter."

As for the matter of trails, in particular, we know amazingly little, for although the white man availed himself readily enough of these primitive paths, he did not, as a rule, deem it worth his while, even if capable of literary expression, to enlighten us as to the course they took.

In the case of Wyoming Valley, however, we are quite fortunate in that there has been preserved for us a certain amount of information anent some of the prehistoric highways anciently giving access to this region. One of these trails, thus rescued from utter oblivion, is the Pechoquealin-Wyoming thoroughfare. Apparently, it was one of five major Indian paths between Susquehanna and Delaware rivers in use prior to the Revolutionary War. Two of these were supposedly war paths and they will all be briefly discussed. While our data respecting it are anything but copious, they are sufficient clearly to indicate the general direction it took.

Of the five paths connecting the two rivers, it seems to have been the most frequented. It afforded a direct passage from the Shawnee town of Pechoquealin, just above Delaware Water Gap, to Wyoming Valley. Most probably it was used by the vanguard of the Shawnees when advancing to the valley. Leaving the Gap, it wound along Brodhead's Creek to Stroud's settlement, the modern Stroudsburg, a distance of about three miles, then across Pocono Creek, upstream to its headwaters, thence around the eastern spur of Pocono Mountain to Pine Swamp near what is now Lake Naomi, thence through Great Swamp, a stretch of ten miles, across Tobyhanna Creek and upper reaches of Lehigh River, next four miles to the Shades of Death, then a gloomy swamp, two miles wide, clothed with a tangle of venerable trees and thick underbrush, mostly laurel; thence two miles to Bear Swamp; thence across Bear Creek, up Wyoming Mountain across Ten Mile Run to Oliver's Mills and over Wilkes-Barré Mountain to Wyoming Valley.

GENERAL SULLIVAN'S ROAD.

After a careful analysis of all the evidence relating to the trail just described and to what is known of the route taken by General Sullivan, in 1779, on his punitive expedition against the Six Nations, one cannot easily escape the conclusion that the itinerary of the latter was quite identical with that of the Indian path from a point somewhere near Great Swamp or Pocono Lake to Wyoming Valley. In a word, it is contended that at this point the two lines of travel converged. And, surely, it does appear that Sullivan's army, marching up from Easton, on Delaware River, lighted upon the old Shawnee trail in the vicinity of the swamp and then followed it closely all the way to Wilkes-Barré, making such improvements as would permit of the hauling of heavy stores and artillery.

It is to be borne in mind that in those days roads were few and far between and that journeying through the wilderness, even when not encumbered with baggage, was fraught with hardships. This being so, General Sullivan's expedition was a hazardous undertaking, one beset with many difficulties. Proceeding from Easton, he was glad to avail himself of Indian trails, then still quite distinct, with a large body of axe-men marching ahead of the army, cutting away the timber, that was encroaching upon the primitive narrow path, and building causeways or corduroy roads over wet patches of ground. Arriving in the neighborhood of the Great Swamp, his axe-men hit upon this well trodden path, knowledge of which determined, no doubt, the route taken by the army between it and Wilkes-Barré.

This latter section of the Pechoquealin-Wyoming trail was destined to play its part in those turbulent days which grew out of the Wyoming massacre. Having been made memorable by General Sullivan's expedition, it was saved from forgetfulness as one of the few prehistoric paths of which we have any definite intelligence. Because of its historic associations it was taken note of and on the old map of Wyoming and Lackawanna valleys its valley course is traced, showing that it ran from the site of Fort Durkee, on the Susquehanna, to Georgetown and across Wilkes-Barré Mountain to Oliver's Mills.

It was a short distance due west of the latter place, just beneath the highest point attained by the trail, that the redskins lay in ambush for the vanguard of Sullivan's army. Here, on the path often trodden by them and cleared by their forebears generations ago, they awaited the oncoming of the palefaces. And here, hard by the perennial spring, stands the sandstone obelisk, a pathetic reminder of the tragedy enacted in the spring of 1779.

The monument bears the inscription, "Near this spot, April 23, 1779, Captain Davis, Lieutenant Jones, Corporal Butler and two privates, belonging to the advance guard of the expedition under Major-General John Sullivan, were scalped, tomahawked and speared by the Indians. Their bodies were buried here. Those of the two officers were re-interred in Wilkes-Barré, July 29, 1779.

"This stone is given to the care of the Sons of the Revolution and Daughters of the American Revolution, of Wilkes-Barré, Penn."

A strange feature about this trail is the fact that it crossed Wilkes-Barré Mountain not by a natural pass or notch, involving little climbing, but by passing over its summit.

ASHLEY-MOUNTAIN TOP.

Little can be said with respect to the deep transverse notch that cleaves Wilkes-Barré Mountain between Ashley and Mountain Top. Being a fine natural pass, it was probably threaded by a trail.

SUGAR NOTCH.

The gap trenching the mountain south of the borough of Sugar Notch is known to have been the site of a prehistoric highway. According to our old manuscript map it branched off the great trail south of the river not far from the foot of South Main street, near where a band of Lenâpé Indians had a village in 1742, from which point it bore south by west following the banks of Solomon's Creek and Sugar Notch Creek. During the Pennamite wars this path was much frequented as it was then the route most commonly taken in journeying from Wyoming Valley to Fort Allen.

WARRIOR, WELLER AND ESPY GAPS.

There is little doubt that all these gaps were at one time traversed by trails and the Nanticokes, dwelling near by, may be supposed to have used them most frequently. Without question, they were in existence long before the advent of this tribe in the valley, having been trodden by their predecessors, the Susquehannocks, and other still older tribes, of whom there is no record.

THE NANTICOKE-NUANGOLA PATH.

The aborigine everywhere devoted much of his time to fishing, for the food thus obtained formed an important part of his menu. That the ancient dwellers of Wyoming Valley made no exception to this rule seems fully evidenced by the abundance of netsinkers formerly found littering the river's banks. Needless to say that they knew all the good fishing places and there was not a pond or lake in the environing mountains but was sure to be haunted by them sooner or later.

Nuangola Lake, a body of water pleasantly situated at the southern base of Penobscot Mountain, was one of the many that were periodically visited. All around its shores, it will be recalled, there have been discovered numerous objects testifying to the primitive piscator's presence and these were distributed in such a wise as to suggest no less than three distinct camp sites. In view of this the conclusion seems inevitable that the pond was encircled by a path.

Though it can hardly be open to doubt that a trail led from the river valley to Nuangola, nothing positive is known relative to the route it took. Tradition, indeed, points to a path at the western end of the lake and this path is still in use as a short-cut between it and Alden. Rough under foot and steep in places, it climbs the southern flank of Penobscot Mountain and descends to the shallow notch between Wilkes-Barré and Newport mountains. Going this way it is but four miles from Nuangola to Nanticoke and five miles to the river. That some such path gave access to the fishing sites on the lake cannot be reasonably disputed especially if we admit that those who frequented them were mostly members of the Nanticoke tribe.

In making this statement, the fact is not lost sight of that the Nanticokes as well as various other groups inhabiting Wyoming Valley during the first half of the eighteenth century were late arrivals and that antecedent to them different peoples, such as the Susquehannocks, haunted Nuangola Lake and the river valley. Inasmuch as the Nanticokes were therefore not the first or only people to fish here, the vestiges noted all about this body of water are by no means ascribable to them alone.

WANAMIE-LILY POND TRAIL.

In his study of North Appalachian Indian pottery Mr. Christopher Wren makes mention of an old path still used in passing from Wyoming Valley to Lily Pond, in Slocum township. It appears to have run through Alden and

Wanamie and to have ascended Penobscot Mountain west of the latter place. As stated elsewhere, under an overhanging rock on the hillside, about two miles west of Wanamie, Newport township, Luzerne County, near this old trail, the Moses Vandermark pot was discovered. It is now owned by the Wyoming Historical and Geological Society, Wilkes-Barré, Penn.

WANAMIE-MOCANAQUA.

The high-level valley, extending from Wanamie to Mocanaqua, was probably traversed by an aboriginal thoroughfare. The fact that near Wanamie and Glen Lyon ancient stone implements and pottery fragments were found in profusion may serve to support this assumption.

COUNCIL CUP-ALDEN-WYOMING VALLEY TRAIL.

From the aboriginal encampment on the east bank of Susquehanna River, between the mouths of Wapwallopen and Little Wapwallopen creeks, in the very shadow of Council Cup, an old pathway is known to have issued, winding northeasterly along the tortuous course of Little Wapwallopen Creek to Little Lily Pond, thence over Penobscot Mountain and through the depression east of Newport to Alden and Wilkes-Barré.

CAPOUSE MEADOW-SHOHOLA PATH.

The locality here referred to as Capouse Meadow, near Scranton, can lay claim to considerable archaeological significance, for not only was it the site of an Indian town and cemetery but it was here that several trails converged. Two of these have already been treated of, i. e., the Wilkes-Barré and Oquago paths. A third one, like the last mentioned presumably a war path, bore east past Dunmore, whence it took to high ground, climbing the Moosic mountain and passing through Little Meadow to Wallenpaupack Creek and through the heart of Pike County to Shohola Falls and Delaware River.

It is interesting to note that the first wagon road from Connecticut to Wyoming Valley, then called the town of Westmoreland, made use of many sections of this trail, deviating only where insurmountable physical obstacles interfered.

ASSERUGHNEY-MINISINK ISLAND.

This path was, it seems but seldom used, being very rocky and difficult to negotiate. It established a line of communication between Asserughney, the Lenâpé town, at the confluence of Susquehanna and Lackawanna rivers, and the Minisink settlement, the headquarters of the Munsee division of the Lenni Lenâpé, on Delaware River. Accordingly, it was used almost wholly by the Munsees when journeying from one settlement to the other.

Starting at Asserughney, the eastern gateway of Wyoming Valley, it proceeded up Lackawanna River all the way to its headwaters, thence to Wallenpaupack Creek which it forded below the junction of its west and south branches, thence to Shohola Creek, fording it near its Falls, thence across the hills of Pike County to Minisink Island.

COCHECTON (COCHUTUNK) TRAIL.

Little seems to be known concerning the route followed by this path beyond the fact that it proceeded from Wyoming Valley, passing eastward through Wayne County to Cochecton (Cochutunk), an Indian village on Delaware River. It was presumably a war path.

PORTAGE PATH TO STOCKPORT.

Of the five paths between Susquehanna and Delaware rivers this one was the shortest, being only twenty miles in length. It led from the Great Bend of the Susquehanna, in Harmony township, Susquehanna County, across the northern corner of Wayne County to Stockport, on the Delaware. The Adlun-Wallis map of Pennsylvania (1792) indicates its whereabouts.

WYOMING VALLEY-TIOGA POINT WAR PATH.

This is the last trail to be considered. According to all accounts it was a war path and as such it could, doubtless, tell many a tale of rapine and torture and of sanguinary conflicts reaching far back into the darkness of an inscrutable past.

Starting at Pittston, it forded Lackawanna River, striking northwardly across the broad flats once occupied by Asserughney, thence along the east bank of the Susquehanna to Ransom, Tunkhannock and Tioga Point.

SUMMARY.

The subject of trails is, in the very nature of things, highly enigmatic, involved as it is in speculation and conjecture. As knowledge of most of them has long since been lost, their exact whereabouts must needs be open to doubt. Admittedly, the data from which we have deduced the quandam existence and probable route of the trails anciently honeycombing all this region are hypothetical rather than conclusive. Yet, when all is considered, there is no denying the fact that the argument, such as it is, is in favor of the aforesaid paths having been thus situated.

And, in fact, the peculiar distribution of camp sites and villages in conjunction with the lay of the land tend to suggest the former occurrence of thoroughfares along both banks of Susquehanna River as well as through the mountain passes and along the streams to the north and south and, what is more, that their courses must have been approximately as outlined in the preceding. Surely, the whole subject is not unlike the riddle of the Sphinx. Remaining mute to all our questionings, all we can do is to try to interpret the clues, slender though they be, as best we can.

Apart from the numerous avenues of communication within the valley itself, special cognizance was taken of those pathways that enter this area from points many miles distant. It was most gratifying to find that memory of some of these had been kept alive in that their former existence and general course had been recorded by early chroniclers.

Altogether, there appear to have been no less than five war paths, namely, the Warriors' path to Great Island, the Asserughney-Tioga Point trail, the Capouse Meadow-Oquago trail, the Cochutunk and Shohola paths, the last-named connecting Susquehanna and Delaware rivers. Further, there were three thoroughfares between the Susquehanna and the Delaware, viz., to Pechoquealin, to Minisink Island and the portage path to Stockport.

In view of so many arteries of intercommunication, apparently in use during Indian times, it is hardly to be wondered at that Wyoming Valley was one of the great centres of prehistoric life that we found it to have been.

SOURCES OF RAW MATERIAL.

Primitive industry in Wyoming Valley is well illustrated by numberless artifacts left behind by its one-time occupants. These testimonials of the Indian's erstwhile presence are of absorbing interest in that they furnish the one available clue capable of shedding some light upon his doings and general mode of existence. Invaluable records of a vanished race, they tell an eloquent story of home life, of the art of husbandry and of the chase.

Here as elsewhere, the products of the Redman's indigenous culture were necessarily of two kinds, to-wit, those of domestic use and those of the chase. The former comprised such commodities as clothing and foot gear, fish nets and mats, stone hammers and bone awls, together with ornaments like beads, gorgets and bannerstones, not to omit objects of clay like pots and pipes and the agricultural tools such as hoe-blades, mortars and pestles. The latter included the bow and arrow, the club and the tomahawk, all of which could at any time be used for purposes of war.

These, then, and many more were the results of native ingenuity, of an ingenuity that was to the manor born. They constituted the sum and climax of his material culture at the time when the portentous shadow of the invading European came to darken his existence, putting an end to all further progress along aboriginal lines. Only a few of the above types of objects have escaped the destructive influence of the elements, having been mostly of a perishable nature like bone, wood and textiles.

In casting about for material adapted to the manufacture of the multiform articles so indispensable to his life, the prehistoric artificer made use of a great variety of substances derived from all three kingdoms, animal, vegetable and mineral. The hides of bear and deer and other fur-bearing creatures were fashioned into blankets and clothing, while the tendons of deer proved particularly useful as fish lines and bow strings as well as for fastening the arrow-point to the shaft and the stone hatchet to the handle. Implements of bone and antler, like fish hooks, arrow heads and awls, though formerly no doubt common enough, are rarely met with nowadays, being less resistant to decay.

Of all the material employed wood was the one most easily obtained and also most tractable, as it could be readily wrought into many shapes like mortars and cups. The wood of the hickory tree being hard and tough, was splendidly suited to the making of bows and the smooth twigs of the dogwood yielded fine arrow shafts. Fish nets and mattings were woven from vegetable fibre consisting of stout grasses and the stem of bulrushes skilfully plaited by him. Birch bark canoes were unknown in these parts and the craft commonly in use was the dugout, often made from the wood of white or yellow pine, the trunk of which was hollowed out with sharp-edged stone celts aided by fire.

Stone was the material most generally used, and being well nigh imperishable, utensils made thereof constitute the bulk of public and private collections. It seems like the irony of fate that Wyoming Valley and the adjoining territory, all of it a region eagerly resorted to, should have suffered from a dearth of good native materials suitable for the production of arrow points and spearheads. What little there is of such occurs only sporadically, being scattered through glacial drifts, that were deposited during the Ice Age. As a consequence, the ancient tool-maker had to travel many a mile to procure the necessary materials in sufficient quantities or else secure them through barter.

In his choice of materials he gave preference to the silicates as they were brittle enough to split in conchoidal fractures. It was a wide range of minerals of which he availed himself, including flint, chert, jasper, quartz, quartzite, argillite, rhyolite, slate and sandstone. Broadly, they are the same as those of New Jersey and the New England States, and the types of implements made therefrom are likewise roughly identical.

Flint and chert, in a sense the most important of raw materials in use among the coastal Algonkins, were obtained in different localities. Nodules of black flint occur throughout Northampton, Bucks, and Lehigh counties, Penn. The nearest source, however, appears to have been the region about Cherry Valley, west of Stroudsburg, Monroe County, Penn., fifty-odd miles from Wilkes-Barré. Flanking this valley on the north is a limestone ridge traversed by veins of flint and chert. A huge limestone cavern, named Hartmann's cave, penetrates deeply into the face of the hill high above the valley. This cave is unquestionably of considerable archaeological importance as revealed by the immense quantities of chips, rejects and finished specimens once noted all about its mouth and within its deep recesses. Apparently, it was the site of a large workshop, the headquarters of the prehistoric artisans who, it seems, were stationed here for a long period of time.

About the year 1890 this cave was thoroughly explored by Professor W. H. Holmes of Washington, D. C. His report has not yet seen the light of day; however, he is said to have unearthed hereabouts many hundreds of finished artifacts, all of them made in situ of the fine black flint occurring so profusely throughout this locality. Vast quantities of flakes were noted in the accumulated débris at the entrance to the cavern, showing plainly that it was a stone tool factory of prime magnitude.

On a visit to this place the writer was impressed with the abundance of this sort of material in evidence everywhere. The fields bordering Cherry Creek along the foot of the ridge were littered with numberless pieces of flint and numerous battered pebbles that had no doubt been used for breaking up the large chunks of raw material.

Examination of local collections shows that chert was extensively used in the fashioning of arrow points and scrapers. This mineral was comparatively close at hand for it could be obtained from outcrops in the Chemung formation, in Dorrance township, and at Hobbie, in Hollenback township. Another good locality is the limestone belt of upper Helderberg age near Bloomsburg, Columbia County, Penn.

Jasper, a mineral highly valued could be secured in many places within, say, sixty miles of Wilkes-Barré. Mr. John A. Ruth of Riegelsville, Penn., in a paper in the Smithsonian report for 1883, describing the jasper quarry which may have been the source of much of that material used in Wyoming Valley. He locates it on "Rattlesnake Hill" along Durham Creek, Bucks County, Penn., on the property of Messrs. Cooper and Hewitt, the former owners and operators of Durham Furnace. He also gives a description of the usual pittings and rubbish, at that time overgrown with brush and scrub oak, and he mentions the river pebbles and cobblestones with marks indicating their use (free-hand fracture) and states that chips of red and yellow jasper are found in large quantities scattered over twenty acres around the mines. Blue, red and yellow jasper were obtained also in the hills surrounding Kutztown, Berks County, Penn., and at several quarries in Lehigh County, Penn.

According to Mr. Walter P. Lewis, of Phillipsburg, New Jersey, who has made a close study of this subject, the main source of argillite for this region was probably at Point Pleasant, along Gaddis Run, near Lower Black's Eddy, Bucks County, Penn. This locality has been fully described by Professor H. C. Mercer of Doylestown, Penn., and Professor W. H. Holmes of the National Museum, Washington, D. C. By many it is held that the so called paleolithic implements of the tide-water area of Delaware Valley, the genuineness of which Dr. C. C. Abbott of Trenton, N. J., so ably defended, were simply quarry blocks or rejects from Gaddis Run and near by deposits of argillite. Doubtless, this source of argillite was extensively exploited, having been highly prized because of the excellent material it furnished, in lieu of flint, quartz and jasper, for the manufacture of arrow-points and spearheads.

Quartz and quartzite could be secured in the valley in the form of pebbles, scattered through the glacial gravel beds that overlie much of this region. Slate, too, was close to hand being obtainable in the Catskill rocks north of the valley. Though a poor material and not permitting of a high finish, it was often employed. Hammerstones, tomahawks and hatchets were frequently wrought from a close-grained sandstone, also of local occurrence.

Implements of gray rhyolite have been found on the north side of the river, notably at Hunlock Creek and on the Shawnee Flats. Its sources of supply were, it seems, the ancient quarries near Gettysburg.

Fragments of steatite or soapstone pots were once common at the mouth of Hunlock Creek and a large steatite bowl, nearly complete, was discovered on Scovell's Island in the spring of 1913. This material was probably obtained at the old Indian soapstone quarries near Clifton, Fairfax County, Va.

Clay suitable for pottery-making occurred in many places along the valley of the Susquehanna. Not a few of the stone implements that were found in Wyoming Valley consist of materials that are foreign to this region. Thus, a pipe made of catlinite from Minnesota and some arrow-points of obsidian are reported to have been picked up hereabouts. Again, some of the objects, exhibited at the Museum of the Wyoming Historical and Geological Society, consist of a mineral closely resembling chalcedony and these, too, are claimed to have been gathered on local camp and village sites.

CONCLUSION.

It may be taken for granted that the remains of primitive industry, as found in Wyoming Valley and adjacent territory, belong to many periods extending far back in time. Yet who shall pretend to say when aboriginal life among the Pennsylvania Highlands began? We know when it ceased, but that avails us little. Who, again, will be bold enough to make assertions regarding the products of what is by no means a homogeneous culture? Surely, our facts are too few to serve us as a safe guide.

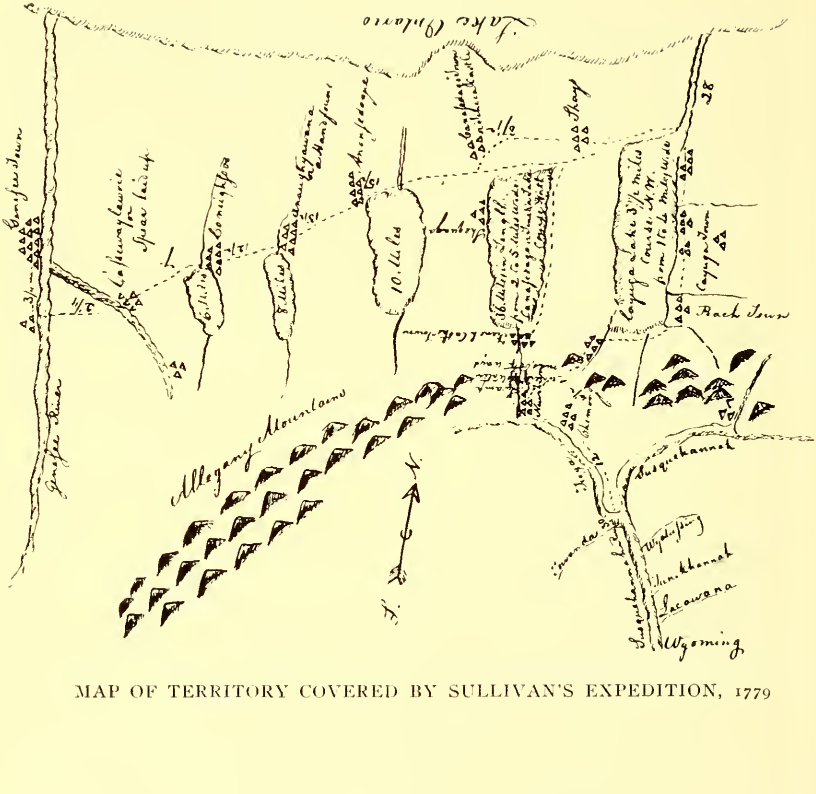
It was suggested by Mr. Christopher Wren that this region was visited by people living as far south as Virginia and that the Susquehanna was a well defined line of demarcation between seemingly heterogeneous tribes. And who can say him nay? Indubitably, in the lapse of time Wyoming Valley was the dwelling-place of many peoples, many of them presumably of Algonkin stock. It witnessed, we may be sure, great changes in population and many shiftings, voluntary or enforced. Nothing positive, however, is known relating to any migratory movements previous to the seventeenth century, for the aborigine left no written records concerning his past and his traditions are vague, mythical and never to the point.

It was only since the advent of the European that we commenced to have some knowledge respecting the movements and distribution of these dyed-in-the-wool and genuine Americans. But this is not archaeology but rather the white man's history engulfing that of the Redman. Whatever important events may have taken place in Wyoming Valley prior to that invasion must forever remain unknowable. Of one thing we may be certain, however, namely, the aborigines were a people with a history and they had had a career.

Within the historical period, i. e., since the commencement of the seventeenth century, there is considerable evidence in support of an Iroquoian occupation of northern Pennsylvania, first of the Andaste-Conestoga and later of the New York Iroquoian type. Apart from the data derivable from the study of collections, the exploration of local rock shelters furnished ample evidence of the cultural influence exerted by people of Iroquoian stock upon those who occupied them. This influence was demonstrated most strikingly in the matter of earthenware which often evinced an effort to improve purely Algonkin forms by way of a certain blending with Iroquoian types especially with respect to ornamentation.

Pondering the evidence afforded by rock shelter remains, it can hardly be doubted that they are to be referred to what is called Middle Algonkin, comparable to the culture complex of New Jersey, with its crude pottery forms and stamped decorations, though frequently betraying, as just stated, the cultural impetus received through close contact with the Six Nations, their masters. As for other industrial types, dug up under rock shelters, such as objects made of stone, they are unquestionably to be correlated with Algonkin culture.

None of the ten rock stations, discussed in the foregoing, afforded any proof of Archaic Algonkin occupation, such as would be revealed by the stratification of different layers, with the lowest containing no pottery. Such traces of the archaic, harking back to a time when the art of pottery-making was yet unknown, may indeed exist hereabouts, but they have not been recognized. Uniformly, the remains proclaimed one culture phase or horizon, which was predominantly Algonkin. In none of the stations did the deposits form a series of stratified layers, with the oldest at the bottom and the more recent ones nearest the surface, and nowhere was there an intercalation of a sterile layer, devoid of any and all traces, betokening occupation, abandonment and reoccupation. Nor did any of the shelters suggest Colonial contact, as evidenced by the occurrence of articles of European manufacture in association with the vestiges of primitive industry. Obviously, objects found under such conditions would establish the fact that the Redman continued to haunt these places even after the European's arrival.



MAP OF TERRITORY COVERED BY SULLIVAN'S EXPEDITION, 1779

DIARY OF OBADIAH GORE IN THE SULLIVAN EXPEDITION, 1779.

The following diary is published through the courtesy of the Harvard College Library, where a copy of the diary is included in the Sparks Papers. Mr. William C. Lane, the Librarian, considers the copy made for Mr. Sparks a careful and reliable one.

Unfortunately the provenience of the diary is uncertain. In the volume containing this copy, there is a note, "selected from General Gates' papers in the possession of the New York Historical Society 1827", but from the fact that the New York Society does not have the original text and from Mr. Winsor's description of the volume in the printed calendar of the Sparks manuscripts, it would seem possible that the note may apply only to the first section of the volume.

The second section of papers is "selected from the originals in the Secretary of State's Office, Massachusetts"; the third group, "written by Major Wemyss", Mr. Winsor notes as being in the cabinet of the Massachusetts Historical Society. The Gore Diary follows these and no specific note in regard to the original is made. After the Diary come three other documents, of which the second is General Sullivan's Order of March and Attack, issued May 2, 1779.

Acknowledgment is here made of Mr. Lane's courtesy in endeavoring to locate the original text and of Dr. Martin's interest in editing the manuscript.

The information given in the footnotes, is largely based on the "Journals of the military expedition of Major General John Sullivan", prepared by Frederick Cook, Secretary of State, Albany, 1887.

PREFACE.

In the year following the devastation of the Wyoming Valley and the massacre of its inhabitants by an army composed of British soldiers, Tories, and Iroquois Indians, the Continental Government resolved to send a powerful force into the heart of the country occupied by the "Six Nations" to chastise the Indians for their cruelty and, by laying waste their country, either to force them into complete submission or to drive them into Canada. With this object in view, a well-equipped army of more than three thousand men under the command of General John Sullivan of New Hampshire was assembled at Easton, Pennsylvania, in the spring of 1779, and left there, June the 18th, on the five day's trip for Wyoming, where the final preparations for the expedition were to be made. On July 31st, after six weeks of strenuous activity, General Sullivan placed his army in motion toward the Indian territory to the North to accomplish the difficult task assigned to him.

The story of this now famous "Sullivan Indian Expedition" has been recorded not only in our numerous state and national histories but in published diaries and journals of men who participated in the expedition. There remains, however, still unpublished, much interesting and valuable historical material, among which is the following brief "Diary or Journal kept by Lieut. Obadiah Gore, in Major General Sullivan's March to Genessee River".

The author of the "Diary", Obadiah Gore, Jr., who was born in Norwich, Connecticut, April 7, 1744, migrated to the Wyoming Valley between 1760 and 1770 with his parents, Obadiah and Hannah Gore. From the establishment of the first New England colony in the valley, the members of the Gore family took conspicuous parts in all the thrilling historic events that characterize the first two decades of the settlement. After surviving the Pennamite Wars, the aged father, Obadiah Gore, was obliged to remain in Forty Fort July 3, 1778, when five of his sons and two sons-in-law marched out with the little army of the valley to meet at the hands of the invading hosts of British, Tories, and Indians the disasterous defeat from which only two of these seven members of the family returned. At the time of the battle, Obadiah, Jr., was with the Continental Army as First Lieutenant, an office to which he was promoted a few weeks after he had enlisted in 1776 and which he continued to hold during the remainder of his six years of service, when he participated in the leading campaigns of the war, including the Sullivan expedition of 1779 against the Iroquois Indians.

After the conclusion of the War of Independence, Obadiah Gore, Jr., moved to Queen Esther's Flats* and to Sheshequin, where he spent the remainder of his life an industrious, honored, and respected citizen. Among the public offices which he held were the Judgeship for Luzerne County, 1787-1791, member of the Connecticut Assembly from 1781-1782 and of the Legislature of Pennsylvania from 1788 to 1790. Judge Gore appears to have been a man superior intellectually, benevolent in disposition, and highly respected and honored by his fellow citizens. He died, December 18, 1821, at his home in Sheshequin.

His Diary begins on July 31, 1779, the date of the departure of the army from Wyoming.

ASA EARL MARTIN, Editor.

Pennsylvania State College,
Dec., 1925.

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*Near the present town of Athens, Bradford Co., Pa.

A DIARY OR JOURNAL KEPT BY LIEUT. OBADIAH GORE, IN MAJOR GENERAL SULLIVAN'S MARCH TO GENESSEE RIVER.

1779 July 31st The army left Wyoming[1] and marched to Lackawanna[2] 9 miles, and encamped on the north side of the river. The boats did not come up. They sunk one loaded with amunitions.[3] (sic).

August 1st Marched at 4 o'clock P. M. and went to Wylatomanck,[4] 7 miles.

August 2d Lay in camp all day; David Brown was wounded.[5]

August 3d Marched at 6 o'clock A. M. and went to Tunkhannack 10 miles.

August 4th Marched at 5 o'clock A. M. and went to a black walnut bottom. Two Indians were discovered near Meshopping.

August 5th Marched to Wyalusing.[6] Wm. Stewart[7] left a man sick, alone at his Drovers Encampment, and when relief was sent him the next day, they found him dead.

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[1] i. e. Wilkes-Barré, Pa.

[2] Lackawanna River, flowing into the Susquehanna from the northeast, called by the Delawares, Lechau-Hanneck, signifying the forks of a river or stream, and by the Iroquois Hazirok; an Indian town called Adjouquay existed at an early date on the east side, on the present site of Pittston.

[3] The fleet of 214 boats under command of Colonel Proctor carried military stores and provisions. The daily rations and camp equipage were supplied by a train of about 1200 pack horses.

[4] Quailutimack, seven miles from Lackawanna, signifying "we came unawares upon them", a place between the steep mountain and the river, said to have been the place of an Indian battle, now site of Wyoanna.

[5] There is no way of ascertaining if this refers to David P. Brown of Pottsville, Pa., or one of the Brown family who settled in Pittston about 1776.

[6] In Bradford Co., site of an early Indian town and the seat of the Moravian mission of Friedenshutten.

[7] Could he be William Stewart, b. 1729, d. in Hanover, Dauphin Co., Pa., July 14, 1803. He was elder brother of Captain Lazarus Stewart, who, in December, 1770, came to Wyoming from Lancaster Co., with his "Paxtang Boys", to help defend the Connecticut settlement from the Pennamite forces.

Also one fell from the boat, when on the way to Wyalusing, and was drowned; and another died very sudden, immediately after the arrival of the army at Wyalusing the same day.

August 6th Lay in camp all day. At evening Lt. Cramer and three of our men went out to scout for some days; and we were ordered to march tomorrow morning at 7 o'clock.

August 7th It rained hard in the morning, upon which we were ordered not to march; this day, at 12 o'clock, the light infantry and our rifle men were ordered on a scout, and returned without any discovery.

August 8th Marched at 5 o'clock to Wysocks. On our way we met Lt. Cramer with his party, that was sent out the 6th, who had discovered the tracks of some Indian spies. General Sullivan's health not permitting him to ride, he came this day in the boats, which with the main army did not come farther than the Standing Stone, about 3 miles back of the light troops.

August 9th Waited until 10 o'clock for the army to come up; at which time we marched to the upper Shashequin Falls; which is a large piece of Bottom Land, that the whole army encamped upon it at night. This day, passing a narrow defile upon the side of Breakneck mountain, three oxen fell down the bank and killed themselves, and in the evening one of the small boats loaded with flour was stove, and her loading lost by reason of darkness.

August 10th Lay in camp. This day a large scout was sent up to Tioga,[8] and found a milch cow, and returned without any other discovery.

August 11th Marched at 7 o'clock, and in about one mile the whole army forded the river, and marched upon the west side, about five miles, to Tioga. We forded that, and encamped in the Forks, about 1½ miles from the mouth. At evening, Lieut. Jenkins[9] with a party went near to Chemong* to reconnoitre the town. Discovered some of the enemy's horses and cattle.

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[8] Now Athens, Bradford, Co., Pa.

August 12th Lieut. Jenkins returned and our whole brigade, who were able to march, were ordered out together, with part of General Poor's brigade; we

August 13th marched all night, and at day break reached the lower end of Chemong Flats, where the enemy's advance picket were posted; they evacuated it without discharging a gun, and alarmed the town, that when we surrounded it, the folks were all gone from home. However, we pursued them about one mile above the town, and were fired upon from an ambuscade of about 40 or 50 of the enemy, and in about 6 miles we gained the height where the enemy were. After we had reconnoitered the woods round, we returned and burnt the town, and proceeded to destroy the corn. In effecting that, Col. Cilly of General Poor's brigade was fired upon by the enemy; they returned the fire, which routed them the second time. After we had destroyed the town, corn, etc., we returned at night to Tioga, much fatigued.

Aug. 14th Lay in camp all day.

15th A number of cattle-drivers, over on the south side of Tioga, after the cattle etc, were fired upon by a party of Indians. Jabez Elliot[10] was killed and scalped, and one other wounded; also one missing.

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[9] Lieutenant John Jenkins was born in New London, Connecticut, November 27, 1751. He migrated to the Wyoming Valley with his father in 1769. He was an active participant in the Pennamite and Revolutionary wars. In November, 1777, he was captured by the Indians and carried a prisoner to Niagara and later to Montreal. During the spring of 1778, while on a journey to a great Indian conference in New York State he escaped and after a most difficult and arduous journey reached home in time to take part in the Harley expedition against Tioga in the summer of 1778. During the early part of 1779, he visited General Washington at his headquarters and with him planned the Sullivan expedition, in which he acted as chief guide of the army.

*Chemung. Town and river by this name.

16th A detachment of 900 men from the army, under the command of Gens. Poor and Hand, were sent with eight days provisions up the Susquehanna River to meet General Clinton.

17th Lay in camp. At about sun-set, a party of Indians attacked a number of packhorse-drivers, that were after their horses, and killed one, wounded another. They both belonged to the German battalion. A scout was sent in quest of them, but to no purpose.

18th Lay in camp; at 11 o'clock Doct. Rogers[11] delivered a funeral sermon, occasioned by the death of Capt. Davis[12] and Lieut. Jones, members of the Society of Free Masons. This day there was so great a demand for men for guards, pickets, and scouts, that there was only 4 privates off duty in the whole brigade.

19th Lay in camp. Nothing happened worthy of notice.

20th Lay in camp. In the morning, a boat came from Genl. Clinton's army, who informed they were at Owago,[13] about 24 miles distant. It rained all day; kept close in our quarters.

21st Still lay in camp.

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[10] Jabez Elliott, son of Henry and Mary (Keigwin) Elliott, was the brother of Joseph Elliott, who escaped from Queen Esther's massacre of the prisoners on the night following the Battle of Wyoming.

[11] Rev. John Rodgers, D. D., of New York City.

[12] Captain Joseph Davis of the 11th Pennsylvania and Lt. William Jones of the Delaware regiments who were massacred April 23, 1779, by the Indians, as they were marching with a detachment for the relief of the garrison at Wyoming. A monument erected at Laurel Run marks the place where they fell. They were reinterred in Wilkes-Barré, in the cemetery corner of North Washington and East Market Streets, and removed to the Hollenback cemetery, when the City Hall was built. The funeral sermon preached by Dr. Rodgers was to have been delivered at their reinterment, but was postponed, on account of a rain coming on. The text preached was the first clause in the 7th chapter of Job "Remember my life is but wind".

[13] Owego, N. Y.

22d At about 11 o'clock the detachment under the command of General Poor and Hand, that marched from here the 16th returned, in company with General Clinton's brigade, and upward of 200 batteaux, pieces of cannon, etc. They received a compliment of the discharge of 13 cannon from our artillery, and three huzzas; from which they proceeded down to the other encampment.

23d Received orders to make preparation for marching the 25th into the Indian country. Arrangements of regiments etc. were made in the brigades. In the afternoon, Capt. Kimball, of Col. Cilly's regiment, was killed by the accidental discharge of a gun, and one other wounded.

24th The 4th Pennsylvania regiment and the Rifle Corps joined our brigade. We left our encampment about 3 o'clock P. M. and marched about 100 rods in front, and there encamped at night. This day another gun was accidentally discharged, in the lower encampment, that wounded a man in the thigh. We were ordered to march tomorrow morning.

25th Were detained by the Commissary and Qu. Master's Departments; in the morning at about 10 o'clock, 3 Indians came into camp, said to be friend-Indians from Oneida, and about the same time of day, it began to rain and continued. While just night this day, John Cary[14] came into camp, in company with two expresses from Fort Pitt. We were ordered to march at 8 o'clock tomorrow morning.

26th The whole army marched at 12 o'clock and advanced 4 miles, and encamped, with a view of crossing Tioga in the morning, but the river had risen over night near 3 feet.

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[14] John Carey. The Carey family came from Connecticut to New York, then to Wyoming. Eleazer Carey was one of the first forty settlers who came to the Wyoming Valley in 1769 and lived at Careytown (named for him) in the lower part of Wilkes-Barré. In 1772 Eleazer brought his family to Wilkes-Barré. His son John was born in Duchess County, New York, in 1756, died September 15, 1844.

27th Marched about 8 o'clock A. M. and went about 6 miles. In this day's march we passed a narrows, or defile, by the side of the river in which we broke a waggon; and other difficulties attended that impeded our march the greater part of the day. Clinton's brigade, that brought up the rear of the army, did not pass the defile this day; however, we reached and encamped on a most beautiful tract of land, that had been possessed by the Tories; in which they had 30 or 40 acres of extraordinary good corn, beans, potatoes, tobacco, and turnips, etc.; a great rarity to our troops. This place was evacuated by the enemy, previous to our march to Chemong.

28th In the fore part of the day, our troops were busily employed in destroying the corn, etc. At 3 o'clock P. M. the army were assembled to march, when 4 or 5 of the enemy on the other side of the river came down, and fired upon the boatmen and immediately run back into the woods. However, we marched that night, and encamped at Chemong.

29th Marched at 8 A. M. and our advanced parties frequently discovered Indians in front, and at the distance of about 4 miles, they had a breast-work situated on a very advantageous height. The rifle corps crept up, and amused them with a scattering fire for 2 or 3 hours, attended with some execution, while our artillery could be brought up to play upon them. Meantime, Genls. Poor and Clinton's brigades advanced to gain the enemy's rear. At 3 P. M. we begun a cannonade upon the breastwork, and in about 6 minutes they began to run and quit their works, which our advance party took possession of immediately. The right flank of the enemy, in their flight, fell in with General Poor's brigade, who gave them a warm reception, which put them in such precipitation, as to leave packs, blankets, guns, powder and even an officer's commission etc. We found 9 dead, and took 2 prisoners, and have reason to think that considerable other execution was done, as there was great quantities of blood found in their paths. In all which, we had only 5 killed and twenty three wounded. We passed the breast-work about one mile, and encamped at night. The troops were much animated with this days success.*

30th The army lay in camp all day, while a large fatigue party was sent out to destroy the corn and other vegetables about this place, which amounted to some hundreds of acres of extraordinary good corn, beans, pumpkins, squashes, turnips and potatoes. Also we burnt several Indian buildings. Sundry horses were taken up this day; likewise a great quantity of Indian baggage; such as blankets, leggins, moccasins, skins and many other valuable effects. In one Indian pack was found 46 hard dollars, and a great number of brooches and beads; in another was found thirteen guineas.

Aug. 31st Marched at 10 A. M. and went 10 miles, over an extraordinary good country of land; whereon was a considerable number of Indian buildings, which we burnt. The Indians had hid abundance of their treasures, which our soldiers found. Corn-fields were numerous and excellent good. This day we left Tioga. Some canoes were seen going up the river, upon which the rifle-corps and a company of the light infantry were sent after them, but they did not come up with them; however, they burnt a number of buildings, and destroyed about 4 acres of corn.

Sept. 1st Marched at 8 A. M. and by 12 o'clock, we were on the waters of the river St. Lawrence, and in following them down, we passed through about 3 miles of hemlock swamp, at the end of which, was extraordinary good land, between two mountains that widened out to a great extent, and a fine level level *(sic)* country appeared before us; we arrived at French Catherine's[15] at night, where we were plentifully supplied with vegetables. The Indian fires were still burning in many places, but they had evacuated the place, all, except an old squaw that could not travel. She informed us that they held a council in the morning, in which the squaws insisted that the warriors should make a stand at this place, but they thought they were not able to withstand us. However, it was concluded that the squaws should go immediately off with their cattle, horses, and baggage and the warriors to remain to fight us. But upon the approach of our troops, they went off and left their fires as above. We found at this place horses, cattle, hogs and abundance of furniture etc. our baggage did not come up this night.

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*This engagement, commonly referred to as the battle of Newtown, was fought on the present site of Elmira, New York. It proved to be the most important engagement of the entire campaign.

Sept. 2d Our baggage came up in the morning; the troops and horses much fatigued with their yesterday's march. We lay in camp all day. Two scouts were sent out, but they made no other discovery, than the tracks of the enemy, with their horses and cattle going off.

3d Marched at 8 in the morning and went 12 miles, about a north course, over an extraordinary good country of land, mostly upland, with Walnut, White Ash and White Oak timber. No mountains in sight all day. One of our advance parties discovered an Indian spy; a little before we encamped, who made off with himself very quick. After we encamped, some soldiers went forward about half a mile, where was a small Indian settlement, which furnished us with plenty of vegetables, and our horses with forage. This country is pleasantly situated between the Conodegago[16] and Cyuga Lakes[17] about 8 miles distant one from the other and the course of them is about North and South.

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[15] Catharine's Town—She-o-qua-ga,—an Indian village a little south of the present village of Havana. It was the residence of Catharine Montour and named for her. She was a daughter of French Margaret and granddaughter of Madame Montour. Queen Esther was her sister.

4th It rained in the morning; marched at 11, and went nearly the same course as yesterday, over a most excellent country of upland; the road at about one mile distant from the lake on the east side; we travelled 13 miles, encamped a mile in front of the main army. No mountains in sight all day. We destroyed some corn and Indian Colibins [cabins?].

5th Waited till near 11 o'clock for the main army to come up; at which time we marched; on our way we destroyed some corn-fields and burnt one house. One o'clock came to a town called Kenday;[18] considerable of an elegant town, and pleasantly situated on the east side of the lake, and a large number of apple and peach trees, also large corn-fields. The country exceeding good and pleasant. Near this town the rifle men fell in with Mr. Sweatland, as he was making his escape from the enemy to us, who informed that old Butler,[19] with his party of Indians and Tories, had left this town last Thursday and Friday, and consisted of about 800, which was all they could raise, and that the whole had engaged us in the battle of Newtown; but the particulars of their loss he could not learn. However, they were very short of provisions, and eat horses, and that the Indian families had all moved to Conadagago.[20]

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[16] Seneca Lake. The town Cannadasago, or Seneca Castle, lay about three and a half miles from the outlet.

[17] Cayuga Lake.

[18] Kendaia, a town of about twenty houses, located about half a mile from the east side of Seneca Lake. A noted Seneca warrior named Kendaia was conspicuous at the siege of Fort Niagara in 1759. Luke Swetland, captured at Wyoming by the Indians, resided here for a year as a prisoner until rescued by the army.

[19] John Butler, leader of the British, Tory and Indian forces at the Battle of Wyoming.

6th The horses and cattle had strayed over night so much, the army did not march until 3 P. M. and then without a considerable number of both horses and cattle, that we were under a necessity of leaving a quantity of flour, under the care of a guard; we marched about 3 miles over an extraordinary country of land, and encamped on the banks of the lake.[21]

7th Marched at 8 A. M. and went over extraordinary good land; at about 2 o'clock we passed a large creek, when the Lake discharges itself, by the side of which was marshy and swampy land, that hindered the army several hours to pass; however, at night, we came to the Conodagago Indian town, which was by far the greatest town we came to yet; in this, was found a white child about 3 years old,—also was found 6 scalps, that they had taken from the white people.

8th The army lay in camp to wash their clothes and collect vegetables, which grow here in great plenty.—Corn fields numerous, and exceeding good, and abundance of fruit trees; all of which Fatigue Parties were sent out to destroy; also a party of about 140 men, under the command of Major Parr,[22] was sent to destroy a town about 7 miles from this place and on the west side of the lake. Just before night, he sent for a reinforcement to help him destroy the corn there, that was in such plenty as would require some days for him to effect, upon which a Field Officer's command was sent to his assistance. The remainder of the army was ordered to march tomorrow morning for the Genessee river, except a

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[20] Canandaigua, an Indian town of twenty-three large houses, in west part of present village of the name.

[21] Seneca Lake.

[22] Major James Parr of Morgan's Riflemen.

Captain's command, who was ordered to return with the invalids to Tioga.

9th It rained in the morning. The army marched at 12 o'clock and went about 7 miles, a westerly course, over an exceeding good country of land. At night the two commands, mentioned yesterday, came up who informed they burnt upwards of twenty houses, and destroyed the corn, fruit-trees, hogs, poultry, and taken some horses etc. This town is known by the name of Schequaga.

10th Marched at 8 o'clock in the morning and went eight miles, to a beautiful lake, near to which was an Indian town called Annongedoque,* pleasantly situated; with buildings good and elegant; corn and vegetables in great plenty. We arrived at the town at 2 o'clock; burnt it and proceeded to destroy the corn, etc.

11th Marched at 6 A. M. and went nearly a south-west course, over a good country of land 13½ miles, to an Indian town called Anwoughyawna,[23] with great improvements about it. The Indians left some fires burning. This town is pleasantly situated near a small lake. Here we left the greatest part of our ammunition and provisions, together with our worst horses, under the care of a proper guard.

12th It rained in the fore part of the day; that prevented our marching till near one o'clock. However, we marched 12 miles a southwesterly course, over exceeding good land and encamped in the wilderness, about 1½ miles from an Indian town called Coneighgoos.[24] In the night, Lieut. Boyd,[25] of the rifle corps, was sent with 23 men to reconnoitre a town, on a branch of the Genessee, about 6 miles distant, and they were to return in the morning as soon as possible.

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[23] Hanneyaye, an Indian town located at the foot of Honeote Lake.

[24] Kanaghaws, or Adjutoa, an Indian town of about eighteen houses located about a mile northwest of Conesus Centre.

[25] Lt. Thomas Boyd of Morgan's Riflemen, massacred September 13th, 1779.

*Canandaigua.

13th The army marched at 5 in the morning and went to Coneighgoos, and halted to destroy the corn and vegetables, which were then in great plenty. At about 8 o'clock, 3 men of Lieut. Boyd's party came in, and informed that they had been to the town, and the Indians had evacuated it. At about 12 o'clock 3 men more of the same party came in, and informed, that Boyd had concluded to remain in the town, until the army came up (which was against orders). And as they lay concealed in the bushes 4 Indians came into town. Two of Boyd's party fired upon them; killed one and wounded another. After this Boyd thought best to return with his party, and on his way was attacked by about 150 Indians, who, they supposed, had cut off the whole party except themselves; in a few minutes, the whole army was alarmed by a party of Indians firing upon the Surveyor who had gone on a little in front of the army. One of the chain-men was shot through. The army marched a westerly course over a good country of land to ———,[26] and on the way we found of Boyd's party lay dead and mangled in the Indian manner. At this town was abundance of corn and vegetables.

14th The chain-man, mentioned yesterday, died this morning. A fatigue party, of two thousand men, was ordered out at 6 o'clock to destroy the corn etc. which was effected at about 12 o'clock. Then the army marched about 5 miles to the Genessee town, on the west side of the river; a large town, and the pleasantest situated place I ever saw; with abundance of corn and vegetables about it; here was found the bodies of two men; one supposed to be Lieut. Boyd's and another who was taken, brought here, and butchered in the most savage and inhuman manner possible. They were both buried in the evening.

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[26] According to the date, this must have been the Indian town of Gathtsegwarohare, variously spelled in the different journals, Gaghegwalahale, and Cassawauloughly.

15th Large fatigue parties were sent out early in the morning, to destroy corn and the vegetables growing here. It was computed, that not less than 200 acres of corn was destroyed about this town, and the largest that ever I saw grow. The town and other out-buildings, which was numerous, were burnt. Mrs. Lester,[27] formerly of Westmoreland,[28] who was taken the 5th of last Nov., came in to us, with her child, and informed that the Indians were dispersed in the woods, with their families and moveables. But those that we drove from the more easterly towns were all gone to Niagara. They had a considerable number of other prisoners yet with them. At half after 4 o'clock P. M. we had effected the destruction of the Genessee, and begun our march to return. We encamped at night on a large Flat, on the East side of the river.

16th In the morning large fatigue parties were sent out to destroy corn. A party under the command of (?) was sent about 4 miles up the east branch of the Genessee, to burn a town and destroy a town there. They returned by 12 o'clock, at which the army marched and went to Coneighgoos; but on the way, our flanks went over the ground where Lieut. Boyd had his engagement with the Indians, and found fourteen of his men lying

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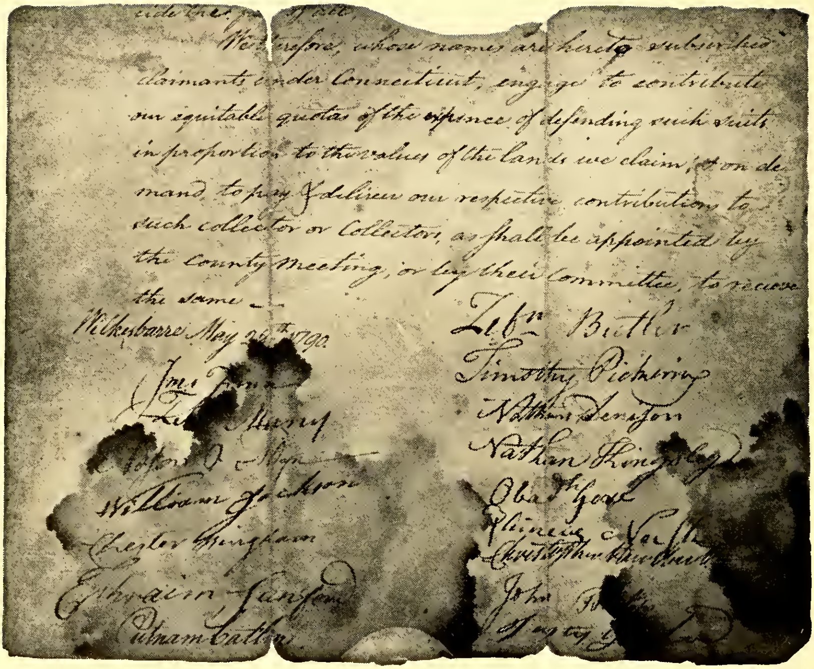
[27] Edward Lester and one of his children were killed by a party of Indians November 5, 1778, Mrs. Lester and her baby were taken prisoners. Sullivan's army brought them back to Wyoming. She subsequently became the wife of Rosewell Franklin whose wife had been killed by the Indians while he and his friends were trying to rescue her and her two children from captivity. Rosewell Franklin twice had his home with all its contents and his live stock burned and destroyed by hostile Indians.

[28] The name given Wyoming by Connecticut and retained until 1783.



cide the [illegible] of all,

We therefore, whose names are hereto subscribed claimants under Connecticut, engage to contribute our equitable quotas of the expence of defending such suits in proportion to the values of the lands we claim, & on demand to pay & deliver our respective contributions to such collector or Collectors, as shall be appointed by the County meeting, or by their Committee, to receive the same —

Wilkesbarre May 26th 1790.

Jno. [illegible]
[illegible] Murry
John [illegible]
William Jackson
Chester Bingham
Ephraim Sanford
Putnam Catlin

Zebn. Butler
Timothy Pickering
Nathan Denison
Nathan Kingsley
Obadh. Gore
Phineas Nash
Christopher Hurlbut
John [illegible]
[illegible]

Leaf from the "Proprietors' Book," giving signature of Obadiah Gore.

dead and scalped; among which was Honeost the Oneida Col.

17th Marched at 6 o'clock, and went to Announghyawna,[29] where we left our provisions etc, and found all safe; we arrived at 10 o'clock and encamped.

18th Marched at 9, and went to Annongedago Lake,[30] and encamped about 12 o'clock. This day we met an Indian from Oneida, who informed, that New York was in the possession of the Continental Army, with a number of circumstances attending it etc., etc., etc.

19th Marched to Conadegago.

The last entry in this "Diary" is dated September 19th. Following this, the army, which was encamped in central New York in the very heart of the Six Nations, having defeated the Indians disasterously in battle and devastated their country, divided into separate detachments and resumed its march homeward, continuing its work of destruction. On October the 7th, after sixty-nine days of strenuous campaigning, it arrived at Wyoming, the starting point of the expedition.

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[29] Hanneyaye.

[30] Canandaigua Lake.

TOMBSTONE RECORDS,
ST. JOHNS CEMETERY, BUTLER TOWNSHIP.

Adams.

Elizabeth, wife of Henry; b. 24 Aug. 1805, in Sonira, Germany; d. 17 Apl. 1893.

Henry, b. 9 Nov. 1811, in Sonira, Germany; d. 24 Oct. 1887.

Albertson.

Grantie; b. 12 Sept. 1868; d. 29 Aug. 1869.

Andreas.

John; d. 1 Sept. 1850, Ae. 64 y. 2 m. 8 d.

John, jr; b. 12 Jy. 1807; d. 5 June, 1854.

Mary, wife of John, Jr; d. 23 Oct. 1839, Ae. 32 y. 1 m.

W. B; b. 11 Jan. 1849; d. 19 Dec. 1864.

Archer.

Amanda, A., dau. of Charles and Mary Ann; d. 25 Feb. 1858, Ae. 1 m. 28 d.

Elias; b. 24 Dec. 1807; d. 25 Dec. 1870.

Aro.

Rebecca, wife of Jacob; d. 19 May, 1846, Ae. 48.

Aroh.

John, b. 26 Jy. 1824; d. 17 May, 1874.

Balliet.

Abraham, b. 19 Dec. 1786; d. 14 Jan. 1839.

Charles A; son of C. J. & Mary; d. 3 Dec. 1852. Ae. 6 m.

Daniel; b. 29 Mch. 1834; d. 27 Aug. 1836.

Deborah Ann, wife of Wm., nee Swearer; b. 6 Dec. 1827; d. 17 Nov. 1889.

Emeliza, dau. of C. J. & Mary; d. 12 Aug. 1850, Ae. 1 y. 5 m. 1 d.

Franklin, son of Samuel & Jane; b. 15 May, 1857; d. 7 May, 1858.

John; b. 27 Dec. 1798; d. 3 Apl. 1873.

Margaret Elizabeth, dau. of Wm. & Deborah Ann; b. 21 May, 1856; d. 16 Jy. 1867.

Mary, wife of Abraham, and dau. of John & Elizabeth Berager; b. 27 Nov. 1791; d. 10 Jan. 1867.

Mary Margaret, wife of John; b. 12 Jan. 1803; d. 7 May 1877.

William; b. 12 Nov. 1822; d. 27 Jy. 1884.

Barager.

Nathan; b. 25 June, 1815; d. 12 Apl. 1881.

Barlot.

Henrietta, wife of John, and dau. of Philemon Santee; d. 13 Aug. 1854, Ae. 44 y. 10 m. 5 d.

Beck.

Henry; d. 30 May, 1903, Ae. 77 y. 6 m. 5 d.

Jamin Fran, son of Henry & Mary; b. 25 Jy. 1858; d. 3 Nov. 1864.

Mary A. wife of Henry.

William Henry, son of Henry & Anna M; b. 4 Feb. 1867; d. 5 May, 1868.

William R. son of J. M. & Sarah J; d. 20 Aug. 1883, Ae. 8 m. 15 d.

Behling.

Charley; b. 2 Jy. 1867; d. 30 Dec. 1879.

Christinia; d. 9 June, 1918, Ae. 84 y. 11 m. 18 d.

Frederick; b. 17 Oct. 1859; d. 30 Dec. 1876.

Henry W; b. 3 Jy. 1823; d. 18 Sept. 1900.

Beisel.

Alonzo, son of P. & B; d. 18 Sept. 1858, Ae. 6 m. 22 d.

Anna C., wife of Peter; d. 5 Jan. 1854, Ae. 85 y. 2 m. 5 d.

Catharine, wife of John; b. 19 Sept. 1799; d. 7 Sept. 1859.

John; b. 18 Dec. 1793; d. 19 June, 1860.

Tilghman; d. 12 Apl. 1879, Ae. 48 y. 11 m. 19 d.

Beishline.

Esther, dau. of Simon & Margaret; b. 7 June, 1859; d. 28 Apl. 1875.

Jacob; d. 20 Mch. 1889, Ae. 68 y. 10 m. 8 d.

Margaret; 1825—1892.

Michael; b. 1 Dec. 1804; d. 12 Sept. 1875.

Benner.

Alice, dau. of Herman & Mathilda; b. 30 Nov. 1856; d. 21 Mch. 1858.

Anna, wife of Henry; d. 12 Mch. 1855, Ae. 60 y. 22 d.

Anna N., dau. of John H. & Catharine; d. 1 Oct. 1845, Ae. 20 y. 6 m. 5 d.

Carrie E. dau. of Jacob & Maria; b. 2 Sept. 1861; d. 18 Apl. 1863.

Catharine, wife of John H; d. 24 Aug. 1845, Ae. 46 y. 5 m. 6 d.

Charles, son of John H. & Catharine; d. 18 Sept. 1848, Ae. 15 d.

Christian, Sr.; b. 1 Sept. 1800; d. 18 Feb. 1878.

Daniel Henry, son of Charles & Elizabeth; b. 17 May, 1848; d. 17 Apl. 1850.
Henry; b. 11 Nov. 1788; d. 11 Aug. 1847.
Jacob; b. 1 May, 1803; d. 2 Jy. 1857.
John H; b. 27 June, 1798; d. 6 Mch. 1858.
John H., son of John H. & Catharine; d. 4 Oct. 1845, Ae. 15 y. 1 m. 7 d.
Maria, wife of Christian, Sr.; b. 15 Aug. 1803; d. 5 June, 1876.
Maria, wife of Jacob; b. 20 Jan. 1807; d. 27 Apl. 1867.
Mary C. dau. of John H. & Catharine; d. 5 Aug. 1840, Ae. 1 mo. 19 d.
Matilda, wife of Herman; b. 28 Aug. 1829; d. 19 Feb. 1877.
Polly Ann, dau. of Herman & Mathilda; b. 11 Mch. 1851; d. 20 Sept. 1863.
Wm. Emerson, son of Henry & Mary; b. 20 June, 1860; d. 18 May, 1871.

Berger.
Sarah, wife of Nathan; b. 27 Nov. 1821; d. 17 May, 1864.

Best.
John; d. 16 Sept. 1856, Ae. 37 y. 8 m. 3 d.
Michael; d. 24 Aug. 1841, Ae. 77 y. 3 m.

Betterley.
Catharine, wife of George; d. 7 Mch. 1852, Ae. 67 y. 5 m. 28 d.
Mary L., dau. of Thomas & Henrietta; d. 8 Sept. 1855, Ae. 3 y. 6 m. 17 d.

Betterly.
Anna, wife of Wm. Caster, d. 28 Aug. 1860, Ae. 102.
(Veteran of War of 1812)
Emanuel Lazarus, son of Adam S. & Caroline; d. 13 June, 1851, Ae. 1 y. 5 m.
William C., d. 30 Nov. 1841, Ae. 82.
(Veteran of War of 1812)

Blose.
David; b. 10 Jan. 1813; d. 26 Feb. 1899.

Bock.
Daniel; b. 22 Dec. 1783; d. 12 Feb. 1856.
Israel, son of Jonas & Sarah; b. 22 Jan. 1843; d. 6 Jy. 1857.
Jonas; b. 26 Oct. 1807; d. 12 Mch. 1873.
Sarah, wife of Jonas; b. 28 Mch. 1811; d. 5 Sept. 1887.

Boyer.
Reuben; b. 8 Jan. 1837; d. 20 Apl. 1868. (Civil War Veteran).
Braehm.
Nicha; b. 1 May, 1815; d. 31 Aug. 1859.
Brasher.
Barbara, wife of Reuben; 1832—1919.
Reuben; d. 15 Nov. 1883, Ae. 54 y. 2 m. 3 d.
Buff.
Anne M. wid. of Nicholas; d. 25 June, 1858, Ae. 72.
John Edwin, son of Henry & Catharine; Ae. 10 m. 1 d.
John V; d. 28 May, 1838, Ae. 26 y. 4 m. 14 d.
Nicholas; d. 23 May, 1852. Ae. 70 y. 2 m. 27 d.
Cahn.
Addie M; Ae. 7 d.
John F; Ae. 7 d.
Mary E; Ae. 8 y.
Cook.
Charles, son of Benjamin & Sarah; d. 7 Sept. 1853. Ae. 1 y. 1 m. 12 d.
Crarey.
Florentine E., son of Horace & M. T. Daniel; Ae. 6 m.
Dauber.
Daniel, son of Daniel & Polly Ann; b. 18 Sept. 1868; d. 14 Mch. 1870.
Doudt.
Samuel, son of Daniel & Elizabeth; b. 9 Mch. 1828; d. 25 June, 1872.
Drasher.
Amelia Minerva, dau. of Conrad & Sarah; b. 26 Oct. 1867; d. 26 Jan. 1872.
Anna Maria Winter, wife of John; b. 8 Jan. 1796; d. 25 Jan. 1874.
Conrad; b. 31 Dec. 1819; d. 13 Mch. 1872.
Harris, F., son of Edwin & Sarah A; d. 21 Mch. 1875; Ae. 1 m. 4 d.
John; b. 6 May, 1789; d. 19 Apl. 1868.
Mary Santee, wife of Samuel; m. 22 Apl. 1847; d. 8 Jy. 1852. Ae. 23 y. 3 m. 4 d. "In the time of marriage they had two sons and one daughter born."
Reuben F. son of Conrad & Sarah; b. 2 June, 1857; d. 26 Aug. 1876.
Samuel; b. 11 Apl. 1817; d. 31 Oct. 1870.

Sarah, wife of Conrad; b. 11 Jy. 1826; d. 23 Jy. 1897. "Erected by her beloved husband, Benjamin Eisenhard."
Willie E. son of C. F. & M. A; d. 18 Sept. 1879; Ae. 1 y. 11 m. 12 d.

Dresher.

Conrad A., son of Stephen & Sarah C; d. 29 May, 1877, Ae. 5 y. 22 d.
Esther; b. 3 Dec. 1824; d. 22 Sept. 1863.
Sarah Catharine, wife of Stephen; b. 30 Nov. 1850; d. 19 Feb. 1885.

Drum.

Abraham; b. 11 Oct. 1797; d. 9 Nov. 1862.
Anna Cordilia, dau. of Reuben & Poly A; b. 2 Feb. 1866; d. 21 Feb. 1871.
Anna M., wife of John; b. 18 Dec. 1831; d. 16 Apl. 1896.
Anna M; b. 1834; d. 1 Mch. 1857, Ae. 23 y. 7 m. 2 d.
Anne M. "Aunt Peggy".
Caroline, dau. of Abraham; b. 24 Apl. 1841; d. 22 Aug. 1847.
Catharine, wife of Isaac; b. 22 Jy. 1821; d. 16 Jy. 1848.
Cleaver D., son of M. & M. J.; d. 5 Sept. 1871, Ae. 2 y. 5 m. 1 d.
George, Sr; b. 15 June, 1762; d. 27 Feb. 1831.
Ida M., dau. of M. & M. J.; d. 29 May, 1872, Ae. 9 m. 28 d.
Jacob; d. 30 Aug. 1830, Ae. 38 y. 9 m. 24 d.
Jacob; d. 24 May, 1878, Ae. 64.
Jacob, son of Isaac & Catharine; b. 8 Jan. and d. 25 Jy. 1848.
John; b. 25 May, 1826; d. 21 Nov. 1881.
Lovissa, dau. of Abraham & Magda; b. 6 Nov. 1834; d. 5 Aug. 1841.
Magdalen, wife of Abraham; b. 2 Jan. 1801; d. 21 Apl. 1861.
Magdalena; 1802—1885.
Mary Ellen, dau. of John & Anna Mariah; b. 8 Feb. & d. 2 Mch. 1864.
Nathaniel, son of Isaac & Catharine; d. 12 Apl. 1846, Ae. 7 m. 23 d.
Owen Oliver, son of John & Anna Mariah; b. 12 June, 1857; d. 12 Jan. 1864.
Philip; b. 15 Feb. 1787; d. 27 Feb. 1858.

Rosean L. dau. of John & Anna Mariah; b. 18 Jan. 1872; d. 11 Nov. 1875.

Susan, wife of Jacob; d. 20 Feb. 1894, Ae. 85 y. 1 m. 19 d.

Eckrode.

Sarah Melissa, dau. of Pemon & Amanda E; b. 17 May, 1878; d. 15 Aug. 1878.

Eckrote.

Mary A; d. 1897. Ae. 6 m.

Fagen.

Benjamin, son of Jacob & Elisabeth; b. 16 Sept. 1847; d. 18 Mch. 1850.

Elisabeth, dau. of Jacob & Elisabeth; b. 26 Jy. & d. 4 Oct. 1843.

Sarah J., dau. of Jacob & Elisabeth; b. 1 Sept. 1838; d. 22 Nov. 1857.

Fertick.

Rebecca, wife of Jacob; b. 4 Oct. 1833; d. 28 Jan. 1855.

Fisher.

Calvin, son of Henry C. & Isabella; b. 23 Oct. 1863; d. 12 May, 1880.

Henry; Co. M. 8 Pa. Cav.

Henry C; 1842—1919.

Sabella, wife of Henry C.; 1846—1917.

Frederick.

George, son of Jacob & Lucy; d. 27 June, 1860, Ae. 3 m. 15 d.

Fretzenger.

Elizabeth, b. 16 Jy. 1778; d. 9 Aug. 1847.

Fritzinger.

Christian; d. 19 May, 1859, Ae. 56 y. 4 m. 28 d.

Polly A., wife of Christian; d. 18 Sept. 1879, Ae. 67 y. 11 m. 17 d.

Gabriel.

Herman; b. 21 Mch. 1838, in Hubennear, Breslau, Germany; d. 28 Mch. 1875.

Gavitt.

A. M.; 1856—1909.

Gross.

Elizabeth; b. 5 Nov. 1815; d. 21 Dec. 1891.

Jesse; b. 9 Jy. 1814; d. 12 Sept. 1883.

Gunius.

Elizabeth Michael, wife of Nicholas;

John; b. 10 June, 1797; d. 16 Jan. 1841.

Julian; b. 30 Apl. 1799; d. 4 Sept. 1881.

Harris.

James D; Co. A, 6 Pa. Cav.

James Wadsworth, son of James D. & Sarah; b. 16 June 1872; d. 20 Sept. 1877.

Hartranft.

Amos, son of (?) W. & Barbara; b. 3 Mch. 1861; d. 18 Oct. 1865.

David; 1810—1890.

Mary, wife of David; 1813—1891.

Hauze.

Ulysees Grant, sone of Adam & Sarah; b. 6 Aug. 1865; d. 6 Feb. 1877.

Heastand.

Ellena, dau. of Aaron & Mary M; b. 3 Apl. 1874; d. 2 Mch. 1877.

Mary E., dau. of Aaron & Mary M; b. 17 Sept. 1879; d. 14 Mch. 1882.

Sarah C., dau. of Aaron & Mary M; b. 30 Jan. 1869; d. 7 May, 1873.

Heller.

Elizabeth; d. 16 Nov. 1877, Ae. 83 y. 1 m. 20 d.

Elizabeth, wife of Peter; d. 25 Oct. 1896, Ae. 75 y. 6 m. 29 d.

Lewis; d. 11 June, 1867, Ae. 77.

Henry.

James Monroe, son of Edward & Maria; b. 5 Aug. and d. 19 Aug. 1876.

Hildebrand.

Simon; b. 28 May, 1827; d. 22 Feb. 1877.

Hofecker.

Daniel, son of Jacob & Rebecca; d. 28 Feb. 1831, Ae. 17 y. 11 m.

Jacob; d. 12 Dec. 1857, Ae. 73 y. 6 m. 6 d.

Jacob, son of Jacob & Rebecca; d. 24 Jan. 1814, Ae. 24 y. 7 m. 20 d.

Rebecca, wife of Jacob; b. 2 Sept. 1790; d. 17 Oct. 1867.

Hoffman.

Anna G., wife of John; b. 5 May, 1821; d. 21 May, 1898.

Henry H; 1794—1898.

Hughes.

George A., son of Jacob & Susannah; b. 2 June, 1832; d. 16 Sept. 1864.

Jacob C., son of Jacob & Susannah; b. 19 Oct. 1839; d. 29 Mch. 1840.
Josiah T., son of George & Barbara; d. 3 Sept. 1845, Ae. 1 y. 7 m. 13 d.
Mahala, dau. of George & Barbara; b. 14 Apl. 1839; d. 23 Sept. 1841.
Mary E., dau. of George & Barbara; b. 25 Feb. and d. 6 Apl 1852.
Sivilla S., dau. of George & Barbara; b. 30 May, 1853; d. 10 June, 1860.
Solomon, son of C. & M; d. 24 Jan. 1857, Ae. 5 wks.
William H., son of Jacob & Susanna; d. 3 Sept. 1847, Ae. 6 y. 6 m. 21 d.

Kanig.
Emmy, dau. of Henry & Lydia; b. 23 Aug. 1870; d. 5 Aug. 1872.

Keener.
Manda R., dau. of Joseph & Elizabeth; b. 23 Jy. 1859; d. 18 Oct. 1861.

Kemp.
Louisa A., wife of Wm; b. 1794, in Konegreich, Hanover, Germany; d. 27 Feb. 1881, Ae. 86 y. 2 m. 16 d.
William, Sr; b. 1796 in Konegreich, Hanover, Germany; d. 10 Dec. 1883.

King.
Elmer, son of Isabella E; b. 5 Jy. and d. 30 Nov. 1862.
Isabella E; b. 8 Aug. 1832; d. 6 Nov. 1868.

Klinger.
Jeremiah; Private, Co. E, 93 Regt. Pa. Vols.

Klough.
Clarissa Ann, dau. of John A. & Harriet; b. 21 Apl. 1862; d. 1 Jan. 1867.
Harriet, wife of John A; b. 11 Oct. 1837; d. 18 Jy. 1866.
John A.; b. 15 May, 1836; d. 4 Mch. 1871.

Kolb.
George Henry, son of Abraham & Amelia; d. 22 Nov. 1851, Ae. 1 y. 3 m. 5 d.

Konig.
Moritz M., son of Moritz & C. d. 24 Aug. 1856, Ae. 4 y. 4 m. 4 d.

Krause.
Mary, wife of Michael; d. 14 Jan. 1856, Ae. 72 y. 8 m. 21 d.

Krissengen.

John A., son of Samuel & Mary; b. 19 Apl. 1873; d. 3 Mch. 1874.

Kropf.

Henry; d. 13 Oct. 1855, Ae. 25 y. 2 m.

Kuhns.

Anna M; d. 28 Feb. 1870, Ae. 3 y. 2 m. 11 d.
Elvira; d. 21 Oct. 1878, Ae. 15 y. 3 m. 9 d.
Stephen; 1817—1908.
William H; d. 24 Aug. 1863.

Kuntz.

Mary, wife of Stephen; b. 13 Apl. 1822; d. 31 Mch. 1860.

Langdon.

F. W. S. d. 17 June, 1862, Ae. 37 y. 4 d.
Maria; d. 29 Mch. 1891, Ae. 67 y. 28 d.
Myronida Cleota Otilia, dau. of F. W. S. & M. A; d. 3 Dec. 1857, Ae. 4 y. 11 m. 22 d.

Leistner.

Anna; d. 7 Sept. 1875, Ae. 85.

Lindemann.

Charles F., son of H. & E; d. 16 Feb. 1875, Ae. 2 y. 27 d.
Elizabeth, wife of Hartman; b. 27 Sept. 1828; d. 9 Oct. 1880.
Ellen Dora, dau. of Jacob & Lizzie C; d. 8 Sept. 1875, Ae. 9 m. 5 d.
Emma Jane, dau. of Jacob & Lizzie C; b. 27 Sept. 1879; d. 15 Jan. 1880.
George W., son of Jacob & Lizzie C; b. 13 Oct. 1880; d. 13 Apl. 1881.
Hartman; d. 13 Jan. 1874; Ae. 51 y. 10 m. 17 d.
Jacob W. D.; b. 22 Oct. 1850; d. 26 Mch. 1881.
Mary E., dau. of Jacob & Lizzie C; d. 11 Feb. 1874, Ae. 5 m. 26 d.

Lindermann.

Minnie E., dau. of Philip & Alice; d. 25 Mch. 1877, Ae. 1 y. 16 d.
Philip; d. 10 Nov. 1876, Ae. 22 y. 2 m. 27 d.
William, son of Hartman & Elizabeth; b. 12 Oct. 1861; d. 26 May, 1880.

Lindnel.

Jacob; d. 17 Aug. 1853, Ae. 64 y. 9 m. 10 d.

Lindner.
Catharine, wife of Jacob; b. 3 Jan. 1807; d. 29 May, 1885.
Three infant sons of Jacob & Catharine.

Lutz.
Sarah, wife of Jacob; b. 19 Jy. 1821; d. 22 Dec. 1868.
Sarah, wife of John B; d. 10 Feb. 1880, Ae. 35 y. 23 d.

Mann.
A. S.; 1845—1913.

Mauchumer.
Serrean, dau. of Samuel; d. 9 Feb. 1858, Ae. 8 y. 9 m. 23 d.

Maurer.
Johannes; b. 16 Mch. 1727; d. June, 1814.

Michael.
Catharine, wife of Jacob; d. 18 Jan. 1857, Ae. 74 y. 1 m. 15 d.
Elizabeth A., wife of Jacob; b. 17 Oct. 1800; d. 10 Apl. 1844.
Jacob; d. 10 June, 1871, Ae. 77.
John; b. 10 May, 1827; d. 10 Mch. 1880.

Miller.
Peter; b. 1818; d. May 1890.

Mochamer.
Elsie, dau. of Algier & Lizzie; b. 22 Aug. and d. 4 Oct. 1878.

Mowery.
Clemmy, son of Simon & Elizabeth; d. 27 May, 1868, Ae. 11 m. 29 d.
David; b. 22 May, 1817; d. 13 Oct. 1894.
George C., son of Simon & Elizabeth; d. 30 Mch. 1882, Ae. 18 y. 10 m. 20 d.
Simon; d. 11 Feb. 1867, Ae. 39 y. 6 m. 2 d.

Mowrey.
Abraham; d. 12 Oct. 1846, Ae. 43 y. 11 m. 23 d.
Catharine, wife of Abraham; d. 3 Mch. 1844, Ae. 36 y. 7 m. 12 d.

Mowry.
Mary, wife of Andrew; d. 25 Feb. 1875, Ae. 95 y. 3 m. 9 d.

Moyer.
Sarah Ann; d. 7 Oct. 1883, Ae. 50 y. 10 m. 18 d.

Mumie.
Jacob; Co. A, 143 Pa. Inf.
Salinda, wife of Jacob; b. 25 Dec. 1879; d. 13 Aug. 1917.

Oblinger.
Daniel, son of Stephen & C; b. 8 Apl. 1866; d. 21 Oct. 1868.
Elizabeth, wife of J. H.; b. 1776; d. 19 Dec. 1843.
John Henry; b. 2 Feb. 1775; d. 5 Mch. 1852. (War of 1812 marker).

Rake.
Daniel P.; b. 22 Oct. 1798; d. 19 May, 1881.
Rebecca, wife of Daniel P.; d. 22 Apl. 1874, Ae. 51 y. 8 m. 12 d.

Rarich.
Clara M., dau. of Peter & Julia A; b. 14 Apl. and d. 24 May, 1859.
Daniel, son of Daniel & Magdaline; b. 3 May, 1849; d. 13 Apl. 1850.
Daniel, son of Peter & Julia A; b. 26 Oct. 1850; d. 23 Sept. 1858.
Elizabeth, wife of Daniel; d. 26 Aug. 1847; Ae. 23 y. 11 m. 16 d.
Hannah M; b. 17 Nov. 1783; d. 26 Sept. 1868.
Julia A., wife of Peter; b. 3 Oct. 1819; d. 28 June, 1879.
Peter; d. 14 May, 1852, Ae. 68.
Peter; b. 10 Oct. 1823; d. 20 Mch. 1876.

Reigh.
John C., son of John C. & Alveretta; d. 2 Oct. 1881, Ae. 4 m. 6 d.

Richards.
Richard; b. 15 Apl. 1851; d. 29 July, 1879.

Robbins.
Lydia; d. 26 Jy. 1881, Ae. 74 y. 6 m. 18 d.
Mary H., dau. of John & Julia; b. 24 Nov. 1858; d. 13 Feb. 1862.

Roth.
Albert E., son of Samuel & Caroline; d. 19 Sept. 1837, Ae. 1 y. 5 m. 2 d.
Alonzo D., son of George & Harriet; b. 11 May, 1859; d. 16 Apl. 1863.
George R., son of George & Harriet; b. 16 Sept. 1862; d. 24 Mch. 1863.

Marenda S., dau. of Simon & Anna; b. 1 Dec. 1854; d. 16 Sept. 1857.
Mary A., dau. of Samuel & Caroline; d. 7 June, 1863, Ae. 13 y. 6 m. 4 d.
Peter; b. 8 Feb. 1778; d. 1 Sept. 1863 (Veteran of War of 1812).
Stephen, son of Simon & Anna; b. 11 June, 1856; d. 17 Sept. 1857.
Susanna, wife of Peter; d. 16 Sept. 1853, Ae. 71 y. 2 m.
Thomas S., son of George & Harriet; b. 27 Aug. 1873; d. 13 Apl. 1876.

Ruth.
Christian; d. 26 June, 1883, Ae. 65 y. 8 m. 26 d.
Peter; d. 8 Sept. 1884, Ae. 72 y. 8 m. 8 d.
Rebecca, [wife of Peter?]; d. 19 Aug. 1894, Ae. 69 y. 3 m. 15 d.
Susan, wife of Christian; b. 26 Dec. 1819; d. 31 Aug. 1906.

Santee.
Catharine, wife of Philemon; b. 1 Apl. 1789; d. 6 Oct. 1876.
Daniel; b. 4 Feb. 1809; d. 19 Feb. 1839.
Edwin, son of Thomas & Elizabeth; b. 21 June, 1850; d. 21 Jan. 1853.
Eliza Ann, dau. of Thomas & Elizabeth; b. 25 Sept. 1859; d. 26 May, 1862.
Elizabeth [wife of Thomas]; d. 21 Jan. 1882, Ae. 67 y. 9 m. 28 d.
George; b. 23 Jan. 1776; d. 11 Jan. 1850.
Margaret, wife of George; b. 2 Jy. 1771; d. 23 Apl. 1850.
Mary, wife of Simon; b. 20 Jan. 1811; d. 11 Sept. 1885.
Mary E., dau. of Thomas & Elizabeth; b. 21 Oct. 1847; d. 22 Jan. 1853.
Philemon; b. 30 Apl. 1788; d. 2 Sept. 1866.
Rachel, dau. of T. & E.; b. 6 Jan. 1844; d. 25 Mch. 1853.
Sarah; 1842—1921.
Simon; b. 7 Feb. 1814; d. 30 Mch. 1885.
Thomas; d. 30 Sept. 1880, Ae. 67 y. 3 m. 7 d.

Scheidy.
Anna Maria, dau. of John & Elizabeth; d. 22 May, 1847, Ae. 1 y. 10 m. 21 d.
Barbara, wife of Peter; d. 24 Dec. 1845, Ae. 75.

Elizabeth, wife of John; b. 7 Mch. 1814; d. 11 Jy. 1890.
John. b. 13 Jy. 1809; d. 23 Jan. 1869.
Peter; d. 19 Jy. 1835, Ae. 73.
Samuel, son of John & Elizabeth, b. 5 May, 1840; d. 20 Jan. 1861.

Schellhammer.
Isaac; b. 17 Dec. 1778; d. 7 Jan. 1865.

Schoesche.
Catharine, dau. of Martin & Dartha; d. 8 Aug. 1878, Ae. 1 y. 9 m. 6 d.

Schriment.
Melinda, dau. of Frederick & Esther; b. & d. 15 Feb. 1849.

Schreimer.
Anna Catharine; b. 11 Feb. 1807; d. 20 Mch. 1874.
Henry, son of George & Elizabeth; b. 7 Dec. 1874; d. 21 Jy. 1884.
Margaret, dau. of George & Elizabeth; b. 17 Aug. 1878; d. 1 Jy. 1884.
Mary S., dau. of George & Elizabeth; b. 11 Oct. 1876; d. 27 June, 1884.
William, son of George and Elizabeth; b. 2 May, 1872; d. 7 Jy. 1884.

Seiwell.
Catharine, wife of John; b. 25 Nov. 1811; d. 27 Jy. 1869.

Shafer.
Sarah, wife of James, and dau. of Michael & Elizabeth Beishline; b. 14 Mch. 1843; d. 4 Mch. 1872.

Shaffer.
Eliza A., dau. of James & Mary; d. 17 Apl. 1875, Ae. 1 y. 7 m. 1 d.

Shellhammer.
Harriet B., dau. of Elias & Amanda; d. 25 Mch. 1874. Ae. 4 y. 5 m. 25 d.
Lucy A., dau. of Elias & Amanda; d. 21 Aug. 1857.

Sherman.
Edwin, son of Frederick & Esta; b. 11 May, 1861; d. 11 Mch. 1866.

Shidey.
Catharine, dau. of Peter & Barbara; b. 23 Feb. 1797; d. 14 Apl. 1871.

Smith.
Barbara E., dau. of Adam & Maria; b. 8 Aug. and d. 17 Oct. 1870.

Mary Ellen, dau. of Adam & Maria; b. 14 Sept. 1868; d. 2 Mch. 1869.
Rozila Eve, dau. of John & Catharine; b. 24 Jan. 1849; d. 23 Nov. 1850.
Uriah, son of Wm. & Elizabeth; d. 2 Aug. 1841, Ae. 5 y. 8 m. 20 d.

Snyder.
Infant dau. of Nathan & Rachel; b. 19 June, and d. 27 June, 1838.
Barbara, b. 8 June, 1828; d. 25 Oct. 1885.
Caroline D., dau. of Nathan & Rachel; b. 30 June, 1847; d. 27 Jan. 1848.
Charles; d. 7 Jan. 1878, Ae. 46 y. 11 m. 11 d.
Conrad N; b. 18 Feb. 1884; d. 10 May, 1906.
Ida Louise, dau. of Nathan & L; d. 21 Mch. 1874, Ae. 1 y. 2 m. 29 d.
Julian, wife of Thomas; b. 23 Jan. 1828; d. 29 Apl. 1850.
Lydia, wife of Nathan; d. 22 Sept. 1896, Ae. 52 y. 5 m. 29 d.
Nancy, wife of Thomas; b. 11 Jan. 1831; d. 25 Apl. 1910.
Nathan; Co. M., 2 Pa. H. A.
Thomas; b. 19 Apl. 1823; d. 19 Feb. 1897.

Steibing.
Henry W., Co. I, 176 Pa. Inf; b. 14 Nov. 1835; d. 8 Jan. 1880.

Stivers.
Elizabeth; d. 3 Oct. 1853; Ae. 21 y. 9 m. 21 d.

Strunk.
Esther; b. 20 Aug. 1813; d. 15 Feb. 1899.
John; b. 25 Apl. 1794; d. 26 Jan. 1863; (G. A. R. marker).
Rubena G., son of John & Esther; b. 15 Jy. 1833; d. 14 Feb. 1852.

Swank.
George, son of George & Julian; d. 18 Dec. 1869, Ae. 7.
Ida, dau. of George & Julian; d. 18 Dec. 1869, Ae. 2.
Julian, wife of George; b. 10 Apl. 1827; d. 18 Dec. 1869.
Rosey, dau. of George & Julian; d. 18 Dec. 1869, Ae. 16.
("Victims of the Stockton Cavein.")

Thomas.
Henry; b. 15 Oct. 1787; d. 18 Oct. 1875. (Veteran of War of 1812).
Henry, son of R. & E.; b. 20 May, 1852; d. 14 Apl. 1854.

Louisa, dau. of Reuben & Elizabeth; b. 22 May, 1843; d. 27 Sept. 1861.
Sarah, wife of Henry; b. 1 Feb. 1798; d. 7 May, 1876.

Thrash.
Daniel; b. 9 Aug. 1825; d. 15 Apl. 1912.
Esta, wife of Daniel; b. 4 May, 1822; d. 11 Sept. 1886.

Turnbagh.
George Francis, son of Wm. & Maria; b. 10 Sept. 1851; d. 13 Apl. 1867.

Walk.
John; b. 30 Apl. 1802; d. 13 May, 1868.
Josiah, son of Reuben & Elizabeth; d. 9 June, 1855, Ae. 2 y. 4 m. 28 d.
Pollyann, dau. of John & Mary; b. 21 Jy. 1863; d. 14 Aug. 1865.

Wallace.
Charles B; d. 16 Aug. 1891, Ae. 49 y. 7 m. 8 d. (Civil War Veteran).

Wallen.
Elvira, wife of Wm. J., and dau. of Rueben & Louisa Mochamer; b. 27 Oct. 1855; d. 6 Oct. 1875.

Walp.
Anne Maria, wife of Jonas; b. 12 Oct. 1814; d. 27 Jy. 1873.
Jonas; b. 30 Aug. 1809; d. 29 Jan. 1883.

Walter.
Magdalena, wife of David; 1816—1875.

Wanner.
Catharine, wife of Daniel; d. 17 June, 1854, Ae. 51 y. 10 m.
Daniel; d. 21 Jan. 1879, Ae. 81 y. 7 m. 11 d.
Daniel; d. 21 Jan. 1853, Ae. 29 y. 10 m. 6 d.
Elizabeth, wife of Daniel; d. 4 Sept. 1879, Ae. 58.
Jacob; d. 27 Jan. 1851, Ae. 15 y. 11 d.
John; d. 20 Feb. 1851, Ae. 29 y. 2 d.

Washburn.
John; b. 4 Apl. 1824; d. 13 Apl. 1873.
Maryann; b. 10 Dec. 1825; d. 20 Apl. 1901.

Wenner.
Christian; d. 3 Aug. 1886.
Esther; d. 6 Oct. 1913, Ae. 73 y. 4 m. 8 d.

Henry J., son of Andrew & Susannah; d. 9 May, 1872. Ae. 17 y. 9 m. 12 d.
Oscar H; b. 17 Apl. and d. 4 Oct. 1877.
Sarah A., dau. of Andrew & Susannah; d. 8 May, 1876, Ae. 6 y. 5 m. 5 d.
Susannah, wife of Andrew; d. 20 May, 1822, Ae. 52 y. 11 m. 5 d.

Wigner.
Jacob Henry, son of Susannah; b. 26 Feb. 1852; d. 10 Mch. 1863.

Wirth.
John M; b. 26 Aug. 1783; d. 7 Jan. 1867.

Wolf.
Sarah; b. 9 Aug. 1799; d. 27 Dec. 1880.

Afflictions sore long time she bore,
Physicians were in vain.
Until God alone did hear her moan,
And eased her of her pain.

Woodring.
Anna, wife of George; d. 17 Feb. 1857, Ae. 49 y. 4 m. 3 d.
Cora Ann, dau. of Sheridan & S; b. 18 Mch. 1860; d. 22 Jan. 1866.
Daniel; b. 25 Nov. 1837; d. 12 Apl. 1870.
Della P; dau. of Daniel & Emma R; b. 28 May, 1868; d. 19 Sept. 1869.
Elizabeth, wife of Samuel; b. 4 Feb. 1799; d. 1 Oct. 1882.
George H., son of Daniel & Emma R; b. 13 Apl. and d. 14 Sept. 1865.
Hannah, wife of William; b. 12 Aug. 1832; d. 7 Apl. 1891.
Harrie, son of Sheridan & S; b. 17 Aug. 1867; d. 22 Oct. 1875.
Henry; d. 2 Mch. 1884, Ae. 60 y. 7 m.
J. B; d. 1 Jan. 1874, Ae. 38 y. 5 m. 22 d.
John; b. 17 Apl. 1804; d. 7 Oct. 1880.
Josiah, son of George; b. 21 Aug. 1846; d. 1 Apl. 1854.
Levi; 1844—1916.
Lizzie Jane, dau. of Sheridan & S; b. 20 Mch. 1869; d. 28 Nov. 1875.
Margaretta, wife of Philip; d. 8 Jy. 1834, Ae. 79 y. 9 m. 6 d.
Milly Jane, dau. of Jacob W. & Mary; b. 16 Jan. and d. 25 Aug. 1865.

Nicholas; Civil War Veteran; 1861—1865.
Philip; d. 13 June, 1846, Ae. 78 y. 2 m. 17 d.
Reuben; b. 12 Sept. 1840; d. 19 Jy. 1869.
Samuel; b. 10 Apl. 1793; d. 13 Apl. 1865.
Sarah, wife of John; b. 19 Nov. 1809; d. 23 Nov. 1871.

Yale.
Albert; b. 2 June, 1848; d. 6 Dec. 1871.
George; b. 11 Apl. 1822; d. 11 May, 1855.

Yeager.
Anne, dau. of Henry & Anna; b. 16 Oct. 1870; d. 3 Dec. 1877.

Yost.
Barbara, wife of Samuel; b. 19 Sept. 1784; d. 25 Sept. 1835.
Samuel; b. 3 Mch. 1782; d. 6 Jy. 1836.

Ziert.
Catharine M.—
George—
Philip—

Ziesloft.
Franklin H., son of H. & G; d. 15 Mch. 1832, Ae. 1 y. 1 m. 2 d.

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